

PROSPECTUS SUPPLEMENT
(To Prospectus dated October 31, 2024)

500,000 shares



Spectral AI, Inc.

Common Stock

We are offering in a registered direct offering to a certain investor (the “Investor”) 500,000 shares (the “Shares”) of our common stock, \$0.0001 par value per share (our “Common Stock”), at an offering price of \$1.80 per Share. The Investor has an option (the “Option”) to purchase additional Shares up to the lesser of (i) \$5,000,000 in aggregate proceeds or (ii) the remaining available capacity based on one-third of our public float pursuant to General Instruction I.B.6 of Form S-3 (as described herein). In the event the Option is exercised, the price of any Shares sold shall be the lesser (x) the closing price of our Common Stock on the previous trading day or (y) the 5-day volume-weighted average price of our Common Stock. Each of the securities offered to the Investor will be issued pursuant to this prospectus supplement, the accompanying base prospectus, and a securities purchase agreement, dated November 15, 2024, by and among us and the Investor (the “Securities Purchase Agreement”).

We estimate the total expenses of this offering will be approximately \$10,000. There is no placement agent or underwriter participating in this offering.

Our Common Stock is traded on The Nasdaq Capital Market (“Nasdaq”) under the symbol “MDAI.” On December 11, 2024, the closing price for our Common Stock, as reported on Nasdaq, was \$2.10 per share.

As of December 11, 2024, the aggregate market value of our outstanding Common Stock held by non-affiliates, or public float, was approximately \$26.3 million, based on 20,753,698 shares of outstanding Common Stock, of which approximately 8,242,396 shares were held by affiliates, and a price of \$2.10 per share, which was the price at which our Common Stock was last sold on Nasdaq on December 11, 2024. We have not sold any securities pursuant to General Instruction I.B.6 of Form S-3 during the prior 12-calendar month period that ends on and includes the date of this prospectus supplement (excluding this offering). Accordingly, based on the foregoing, we are currently eligible under General Instruction I.B.6 of Form S-3 to offer and sell shares of our Common Stock having an aggregate offering price of up to approximately \$6.4 million. Pursuant to General Instruction I.B.6 of Form S-3, in no event will we sell securities in a public primary offering with a value exceeding one-third of our public float in any 12-month period so long as our public float remains below \$75.0 million.

Investing in our common stock involves a high degree of risk. See “Risk Factors” on page S-5 of this prospectus supplement and the accompanying base prospectus, as well as the risk factors incorporated by reference into this prospectus supplement and accompanying base prospectus for a discussion of the factors you should carefully consider before deciding to purchase these securities.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus supplement or accompanying base prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

	Per Share of Common Stock		Total
Public offering price	\$	1.80	\$ 900,000
Proceeds to us, before expenses	\$	1.80	\$ 900,000

The delivery to purchasers of the securities offered and sold in this offering is expected to be made on or about December 12, 2024, subject to satisfaction of certain customary closing conditions.

The date of this prospectus supplement is December 12, 2024

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ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying base prospectus are part of a registration statement on Form S-3 (File No. 333-282681) that we filed with the Securities and Exchange Commission (the “SEC”) on October 16, 2024, and that was declared effective by the SEC on October 31, 2024 using a “shelf” registration process. This document is in two parts. The first part is this prospectus supplement, which describes the specific terms of this offering and also adds to and updates information contained in the accompanying base prospectus and the documents incorporated by reference herein. The second part, the accompanying base prospectus, provides more general information, some of which may not apply to this offering. Generally, when we refer to this prospectus, we are referring to both the prospectus supplement and the accompanying base prospectus combined. To the extent there is a conflict between the information contained in this prospectus supplement and the information contained in the accompanying base prospectus or any document incorporated by reference therein filed prior to the date of this prospectus supplement, you should rely on the information in this prospectus supplement. If any statement in one of these documents is inconsistent with a statement in another document having a later date—for example, a document incorporated by reference in the accompanying base prospectus—the statement in the document having the later date modifies or supersedes the earlier statement.

We further note that the representations, warranties and covenants made by us in any agreement that is filed as an exhibit to any document that is incorporated by reference herein were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties to such agreements, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties or covenants were accurate only as of the date when made. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

You should rely only on the information contained in this prospectus supplement or the accompanying base prospectus or incorporated by reference herein or therein. We have not authorized anyone to provide you with information that is different. The information contained in this prospectus supplement or the accompanying base prospectus or incorporated by reference herein or therein is accurate only as of the respective dates thereof, regardless of the time of delivery of this prospectus supplement and the accompanying base prospectus or of any sale of our securities.

This prospectus supplement and the accompanying base prospectus contain summaries of certain provisions contained in some of the documents described herein, but reference is made to the actual documents for complete information. All of the summaries are qualified in their entirety by the actual documents. Copies of some of the documents referred to herein have been filed, will be filed or will be incorporated herein by reference as exhibits to the registration statement, and you may obtain copies of those documents as described below in the section entitled “Where You Can Find More Information.”

It is important for you to read and consider all information contained in this prospectus supplement and the accompanying base prospectus, including the documents incorporated by reference herein and therein, in making your investment decision. You should also read and consider the information in the documents to which we have referred you in the sections entitled “Where You Can Find More Information” and “Incorporation of Certain Information By Reference” in this prospectus supplement and in the accompanying base prospectus, respectively.

This prospectus supplement and the accompanying base prospectus contain and incorporate by reference market data and industry statistics and forecasts that are based on independent industry publications and other publicly-available information. Although we believe these sources are reliable, we do not guarantee the accuracy or completeness of this information and we have not independently verified this information. Although we are not aware of any misstatements regarding the market and industry data presented in this prospectus supplement, accompanying base prospectus or the documents incorporated herein by reference, these estimates involve risks and uncertainties and are subject to change based on various factors, including those discussed in the section entitled “Risk Factors” in this prospectus supplement and the accompanying base prospectus, and under similar headings in the other documents that are incorporated by reference herein and therein. Accordingly, investors should not place undue reliance on this information.

We are offering to sell, and seeking offers to buy, the securities offered by this prospectus supplement only in jurisdictions where offers and sales are permitted. The distribution of this prospectus supplement and the accompanying base prospectus and the offering of the securities offered by this prospectus supplement in certain jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus supplement and the accompanying base prospectus must inform themselves about, and observe any restrictions relating to, the offering of the securities and the distribution of this prospectus supplement and the accompanying base prospectus outside the United States. This prospectus supplement and the accompanying base prospectus do not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, any securities offered by this prospectus supplement and the accompanying base prospectus by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

Unless the context otherwise indicates, references in this prospectus to, “Spectral,” “the Company,” “we,” “our,” or “us” mean Spectral AI, Inc., a Delaware corporation.

PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights certain information about us and certain information contained elsewhere in this prospectus supplement, in the accompanying base prospectus and in the documents incorporated by reference herein and therein. This summary is not complete and does not contain all of the information that you should consider before making an investment decision. For a more complete understanding of the Company, you should read and consider carefully the more detailed information included in this prospectus supplement and the accompanying base prospectus, including the factors described under the heading “Risk Factors,” on page S-5 of this prospectus supplement, the “Risk Factors” section beginning on page 4 of the accompanying base prospectus as well as the information incorporated herein and therein by reference, before making an investment decision.

Overview of the Company

We are an AI company focused on predictive medical diagnostics. Our DeepView System uses proprietary AI algorithms to distinguish between fully damaged, partially damaged and healthy human tissue characters invisible to the naked eye, at the initial time point of wound presentation. The DeepView System delivers a binary prediction on the wounds capacity to heal or not-heal by a specified time point in the future. Our DeepView System’s output is specifically engineered to assist the physician in making a more accurate, timely and informed decision regarding the treatment of the patient’s wounds. Our focus from 2013 through 2021 was on the burn indication. In 2022, we expanded our focus to include the DFU indication.

Spectral AI is devoting substantially all of its efforts towards research and development of its DeepView[®] Wound Imaging System, currently focused on burn wounds and diabetic foot ulcer (“DFU”) indications, specifically engineered to allow physicians to make a more accurate, timely and informed decision for treatment options. The Company has not generated any product revenue to date. The Company currently generates revenue from contract development and research services by providing such services to governmental agencies, primarily to the Biomedical Advanced Research and Development Authority (“BARDA”) and under a contract with the Medical Technology Enterprise Consortium (“MTEC”).

In September 2023, the Company executed its third contract with BARDA for a multi-year Project BioShield (“PBS”) contract, valued at up to approximately \$150.0 million (the “PBS BARDA Contract”). This multi-year contract includes an initial award of nearly \$54.9 million to support the clinical validation and FDA clearance of DeepView[®] for commercial development and distribution purposes. The Company completed the second contract with BARDA, referred to as BARDA Burn II, which was signed in July 2019 and completed in November 2023. Under this contract, the Company furthered the DeepView System design, developed the AI algorithm, and took steps to obtain FDA approval.

In April 2023, the Company received a \$4.0 million grant from MTEC for a project that is expected to be completed by April 2025 (the “MTEC Agreement”). The MTEC Agreement is for the development of a handheld version of the DeepView System which is to be used to support military battlefield burn evaluation. The project has three phases, beginning with planning, design and testing; followed by development, design modification and buildout of the handheld device; and then the manufacturing of the handheld device. In September 2024, the Company received an additional \$800,000 from MTEC for the further development of the handheld device.

On March 7, 2024, the Company formed a new wholly-owned subsidiary, Spectral IP, Inc., a Delaware corporation (“Spectral IP”), to be utilized to advance artificial intelligence intellectual property with a specific emphasis on healthcare. On March 19, 2024, Spectral IP entered into a promissory note with SIM Tech Licensing, LLC, an affiliate of the Company (“SIM Tech”), in the principal amount of \$1,000,000 (the “Promissory Note”). The Promissory Note accrued interest at 8% per annum, and was payable upon the earliest to occur of (a) March 18, 2025, (b) a Liquidation Event (as such term is defined in the Promissory Note) or upon an Event of Default (as such term is defined in the Promissory Note).

On August 28, 2024, SIM Tech assigned the Promissory Note to IP Protocol, LLC (“IP Protocol”), an affiliated entity through common ownership, in which IP Protocol received all of the rights of SIM Tech with respect to the Promissory Note. On October 1, 2024, the Promissory Note was amended to (i) reduce the annual interest rate from 8% to 4%, (ii) extend the term of the Promissory Note through the second anniversary of the issuance date, March 18, 2026, (iii) include a conversion feature at the option of either IP Protocol or the Company to convert the then outstanding principal and accrued but unpaid interest into shares of the Company at any time (into such number of shares calculated by taking a five percent (5.00%) discount to the closing price of the Company’s common stock on the day prior to the date of notice to the Company of the exercise of the conversion right) and at maturity, respectively, and (iv) provide for registration rights of any shares of the Company issued in satisfaction of the outstanding obligations.

IP Protocol or the Company has the right to provide notice (the “Notice”) to the other party, to convert the outstanding principal and accrued but unpaid interest (the “Total Outstanding Obligations”) into shares of the Company calculated by dividing the conversion amount of the Total Outstanding Obligations by the “Share Price.” The Share Price shall equal that number calculated by taking a five percent (5.0%) discount to the closing price of common stock of the Company on the day prior to the date the Notice is delivered to the Company.

Corporate History

Spectral AI, Inc., a Delaware corporation formerly known as Rosecliff Acquisition Corp I (“Rosecliff”) was formed as a blank check company on November 17, 2020. The Company was formed for the purpose of effecting a merger, capital stock exchange, asset acquisition, stock purchase, reorganization or similar business combination with one or more businesses.

On September 11, 2023, the Company consummated a business combination (the “Business Combination”), pursuant to the business combination agreement dated April 11, 2023 by and among the Company, Ghost Merger Sub I, a Delaware Corporation, Ghost Merger Sub II, a Delaware corporation and Spectral MD Holdings, Ltd., a Delaware corporation incorporated on March 9, 2009 and headquartered in Dallas, Texas (“Legacy Spectral”). Upon closing of the Business Combination (the “Closing”), in sequential order: (a) Ghost Merger Sub I merged with and into the Legacy Spectral, with Legacy Spectral continuing as the surviving company as a wholly owned subsidiary of the Company (the “Spectral Merger”) and then, (b) Legacy Spectral merged with and into Ghost Merger Sub II (renamed Spectral MD Holdings LLC) (the “SPAC Merger”, together with the Spectral Merger (the “Business Combination”)), with Ghost Merger Sub II surviving the SPAC Merger as a direct wholly-owned subsidiary of the Company. See Note 3. Upon the Closing, the Company changed its name from Rosecliff to Spectral AI, Inc.

In conjunction with the Business Combination, the Company cancelled the redeemable warrants that it issued to Rosecliff Acquisition Sponsor I LLC, a Delaware limited liability company (the “Sponsor”), in a private placement in connection with the Company’s initial public offering on February 17, 2021 (the “Initial Public Offering”) at Closing, but the 8,433,333 redeemable warrants issued to the public in the Initial Public Offering (the “Public Warrants”) remain outstanding.

Prior to the Business Combination, Rosecliff had 280,485 shares of Class A common stock, par value \$0.0001 per share, issued and outstanding and held by public shareholders (the “Public Shares”) and 6,325,000 shares of Class B common stock, par value \$0.0001 per share, issued and outstanding and held by the Sponsor (the “Sponsor Shares”). Upon the Closing, 5,445,000 of the Sponsor Shares were forfeited, in accordance with a letter agreement with the Sponsor, and the remaining 880,000 Sponsor Shares and 280,485 Public Shares, no longer designated Class A and Class B, were included in shares of the Company’s common stock, par value \$0.0001 per share (the “Company Common Stock”).

Prior to the Business Combination, Legacy Spectral’s shares of common stock, par value \$0.001 per share (“Legacy Spectral Common Stock”) were listed on the AIM market on the London Stock Exchange (delisted on September 7, 2023). In September 2023, prior to the Closing, Legacy Spectral issued 7,679,198 shares of Legacy Spectral Common Stock to certain investors in a private placement, in exchange for \$3.4 million (the “Equity Raise”). Upon the Closing, all of Legacy Spectral’s issued and outstanding 145,380,871 shares of Legacy Spectral Common Stock, including the shares from the Equity Raise, were exchanged for 14,094,450 shares of Company Common Stock at an exchange ratio of 10.31 (the “Exchange Ratio”), meaning that the Company issued one share of Company Common Stock in exchange for 10.31 shares of Legacy Spectral Common Stock.

On September 12, 2023, the Company began trading the Company Common Stock and the Public Warrants on the Nasdaq under the symbols “MDAI” and “MDAIW”, respectively. Prior to the Business Combination, the Company’s shares of Company Common Stock and Public Warrants were listed on the Nasdaq under the symbols “RCLF” and “RCLFW”, respectively.

Implications of Being an Emerging Growth Company and Smaller Reporting Company

We are an emerging growth company, as defined in the JOBS Act. The JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This provision allows an emerging growth company to delay the adoption of some accounting standards until those standards would otherwise apply to private companies. We have elected to use the extended transition period under the JOBS Act for the adoption of certain accounting standards until the earlier of the date we (i) are no longer an emerging growth company or (ii) affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act. As a result, our financial statements may not be comparable to companies that comply more promptly with new or revised accounting pronouncements as of public company effective dates.

In addition, as an emerging growth company, we may take advantage of specified reduced disclosure and other requirements that are otherwise applicable generally to public companies. These provisions include:

- being permitted to present only two years of audited consolidated financial statements in addition to any required unaudited interim consolidated financial statements, with correspondingly reduced disclosure in the section titled “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in the base prospectus;
- an exception from compliance with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, as amended;
- reduced disclosure about our executive compensation arrangements in our periodic reports, proxy statements and registration statements; and
- exemptions from the requirements of holding non-binding advisory votes on executive compensation or golden parachute arrangements.

We may take advantage of these provisions until the last day of the fiscal year ending after the fifth anniversary of the Company’s initial public offering or such earlier time that we no longer qualify as an emerging growth company. We will cease to qualify as an emerging growth company on the date that is the earliest of: (i) December 31, 2026; (ii) the last day of the fiscal year in which we have more than \$1.235 billion in total annual gross revenues; (iii) the date on which we are deemed to be a “large accelerated filer” under the rules of the SEC, which means the market value of our common stock that is held by non-affiliates exceeds \$700.0 million as of the prior June 30th and we have been a public company for at least 12 months and have filed one annual report on Form 10-K; or (iv) the date on which we have issued more than \$1.0 billion of non-convertible debt over the prior three-year period. We may choose to take advantage of some but not all of these reduced reporting burdens. Accordingly, the information contained herein may be different than you might obtain from other public companies in which you hold equity interests.

We are also a “smaller reporting company.” If we are a smaller reporting company at the time we cease to be an emerging growth company, we may continue to rely on exemptions from certain disclosure requirements that are available to smaller reporting companies. Specifically, as a smaller reporting company, we may choose to present only the two most recent fiscal years of audited consolidated financial statements in our Annual Report on Form 10-K and, similar to emerging growth companies, smaller reporting companies have reduced disclosure obligations regarding executive compensation.

Recent Developments

In September 2024, we received a letter with a draft Particulars of a Complaint from Stifel Nicolaus Europe Limited (“Stifel”) in which Stifel contends that the Company owes Stifel approximately \$2,550,000 pursuant to a previous engagement letter entered into with Stifel on November 15, 2021 (the “Engagement Letter”). Stifel alleges that the Engagement Letter entitles them to a percentage of the value of the Company’s Business Combination with Rosecliff. The Company further believes that we have substantial factual, legal and contractual defenses to the claims presented and will vigorously contest the claims, if ultimately brought. The Company also believes it has meritorious claims it is entitled to assert against Stifel and one or more of its representatives. However, the results of litigation are inherently unpredictable and the possibility exists that the ultimate resolution of this matter could result in a material effect on our financial position, results of operations or liquidity.

Corporate Information

Our principal executive office is located at 2515 McKinney Avenue, Suite 1000, Dallas, TX 75201, and our phone number is (972) 499-4934.

THE OFFERING

Common Stock offered by us	500,000 shares of our Common Stock.
Offering Price of our Common Stock	\$1.80 per share of our Common Stock.
Common Stock outstanding following this Offering	21,253,698 shares of our Common Stock.
Use of Proceeds	<p>We estimate that our net proceeds from this offering will be approximately \$890,000, after deducting the estimated offering expenses payable by us.</p> <p>We intend to use the net proceeds from this offering for working capital and general corporate purposes. See “Use of Proceeds” for a more complete description of the intended use of proceeds from this offering.</p>
Dividend Policy	We have never declared or paid cash dividends on our Common Stock and do not anticipate paying any cash dividends in the foreseeable future but intend to retain our capital resources for reinvestment in our business.
Trading Market and Ticker Symbol for Common Stock	Our Common Stock is listed on Nasdaq under the symbol “MDAI.”
Risk Factors	Investing in our securities involves a high degree of risk. For a discussion of factors to consider before deciding to invest in our Common Stock, you should carefully review and consider the “Risk Factors” section beginning on page S-5 of this prospectus supplement and in the documents incorporated by reference in this prospectus supplement.

The number of shares of our Common Stock to be outstanding immediately after this offering is based on 20,753,698 shares of our Common Stock issued and outstanding as of December 11, 2024, and excludes:

- 3,925,016 shares of our Common Stock issuable upon the exercise of outstanding stock options at a weighted average exercise price of \$1.75 per share;
- 8,433,333 shares of our Common Stock issuable upon the exercise of outstanding warrants at a weighted average exercise price of \$11.50 per share; and
- 569,400 shares of our Common Stock issuable upon vesting of restricted stock units issued under our equity incentive plan.

Unless otherwise indicated, this prospectus supplement reflects and assumes the no exercise of outstanding options or warrants.

RISK FACTORS

Investing in our securities involves a high degree of risk. Before deciding whether to invest in our securities, you should consider carefully the risks and uncertainties discussed under the sections titled “Risk Factors” contained in our most recent Annual Report on Form 10-K and in any subsequently filed Quarterly Report on Form 10-Q, as well as any amendments thereto reflected in our subsequent filings with the SEC, which are incorporated by reference into this prospectus supplement, together with other information in this prospectus supplement, the documents incorporated by reference herein, and any prospectus supplement and any free writing prospectus that we may authorize. Please also read carefully the section titled “Cautionary Note Regarding Forward-Looking Statements.” Additional risks and uncertainties not presently known to us, or that we currently deem immaterial, may also adversely affect our business. In addition, past financial performance may not be a reliable indicator of future performance and historical trends should not be used to anticipate results or trends in future periods.

Risks Related to this Offering

You may experience immediate and substantial dilution in the net tangible book value per share of our Common Stock you purchase in the offering.

The offering price per share in this offering may exceed the pro forma net tangible book value per share of our Common Stock outstanding prior to this offering. After giving effect to the sale by us of the Shares at a price of \$1.80 per Share, and after estimated offering expenses payable by us, you will experience immediate increase in valuation of 1.8% per share, representing the difference between our pro forma as adjusted net tangible book value per share as of September 30, 2024 after giving effect to this offering and the assumed offering price. The exercise of outstanding warrants and stock options may also result in further dilution of your investment. See the section entitled “Dilution” on page S-11 below for a more detailed illustration of the dilution you may incur if you participate in this offering.

Our management will have broad discretion as to the use of the proceeds from this offering, and may not use the proceeds effectively.

Our management will have broad discretion in the application of the net proceeds from this offering and could spend the proceeds in ways that may not improve our business, financial condition or results of operations or enhance the value of our common stock. Our failure to apply these funds effectively could have a material adverse effect on our business and cause the price of our common stock to decline.

Resales of our common stock in the public market following this offering may cause the trading price to fall.

The resale of a substantial number of shares of Common Stock could depress the trading price of our Common Stock. This offering of new shares of our Common Stock could result in resales of our Common Stock by our current stockholders concerned about the potential dilution of their holdings. If our stockholders sell substantial amounts of our Common Stock in the public market following the offering contemplated by this prospectus supplement, the trading price of our Common Stock could fall.

Our stock price has been and may continue to be volatile.

Our Common Stock has a relatively low trading volume and the market price has been, and is likely to continue to be, volatile. The variance in our stock price makes it difficult to forecast the stock price at which an investor may be able to buy or sell shares of our Common Stock. The market price for our Common Stock could be subject to fluctuations as a result of factors that are out of our control, such as:

- actual or anticipated variations in our results of operations;
- general conditions and trends in the medical industry;
- redemption demands on institutional funds that hold our Common Stock; and
- general economic, political and market conditions.

We may, in the future, issue additional common stock, which would reduce investors’ percent of ownership and may dilute our share value.

As of September 30, 2024, our Articles of Incorporation, as amended, authorize the issuance of 80,000,000 shares of Common Stock, and we had 18,513,073 shares of our Common Stock issued and outstanding. The future issuance of Common Stock may result in substantial dilution in the percentage of our Common Stock held by our then existing stockholders. We may value any Common Stock in the future on an arbitrary basis. The issuance of Common Stock for future services or acquisitions or other corporate actions may have the effect of diluting the value of the shares held by our investors, might have an adverse effect on any trading market for our Common Stock and could impair our ability to raise capital in the future through the sale of equity securities.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference herein contain forward-looking statements within the meaning of Section 27A of the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”). Any statements about our expectations, beliefs, plans, objectives, assumptions or future events or performance are not historical facts and may be forward-looking. These statements are often, but are not always, made through the use of words or phrases such as “anticipate,” “believe,” “contemplate,” “continue,” “could,” “estimate,” “expect,” “intend,” “may,” “plan,” “potential,” “predict,” “project,” “seek,” “should,” “target,” “will,” “would,” and similar expressions, or the negative of these terms, or similar expressions. Accordingly, these statements involve estimates, assumptions and uncertainties which could cause actual results to differ materially from those expressed in them. Any forward-looking statements are qualified in their entirety by reference to the factors discussed throughout this prospectus, and in particular those factors referenced in the section entitled “Risk Factors.”

The forward-looking statements contained in this prospectus are based on our current expectations and beliefs concerning future developments and their potential effects on us. There can be no assurance that future developments affecting us will be those that we have anticipated. These forward-looking statements involve a number of risks, uncertainties (some of which are beyond our control) or other assumptions that may cause actual results or performance to be materially different from those expressed or implied by these forward-looking statements. These risks and uncertainties include, but are not limited to, the following risks, uncertainties and other factors:

- We have incurred significant losses since inception and may not be able to achieve significant revenues or profitability.
- We are devoting substantially all of our efforts towards research and development of our DeepView System.
- We depend on government funding, which if lost or reduced, could have a material adverse effect on our research and development activities and our ability to commercialize our DeepView technology. Our largest contract is with the Biomedical Advanced Research and Development Authority (“BARDA”) and is the largest single source of revenue for us. Our BARDA contract is not guaranteed to be completed or extended.
- The regulatory review process is expensive, time-consuming, and uncertain and we may be unable to obtain clearance, approval, De Novo classification, or certification for our DeepView technology.
- We are highly dependent on our senior management, directors and key personnel, and our business could be harmed if we are unable to attract and retain personnel necessary for our success.
- We may experience significant delays in completing clinical trials, which could prevent or significantly delay our targeted product launch timeframe and impair our viability and business plan.
- New legislation and regulations and legislative and regulatory reforms may make it more difficult and costly for us to obtain regulatory clearance, approval, De Novo classification, or certification of our DeepView System, or to manufacture, market and distribute our device after clearance, approval, or classification is obtained.
- Disruptions at the FDA and foreign regulatory agencies caused by funding shortages or global health concerns could hinder their ability to hire and retain key leadership and other personnel, or otherwise prevent new products and services from being developed or commercialized in a timely manner, which could negatively impact our business.
- The ongoing labor shortage may limit our ability or the investigators’ ability to find and retain medical staff that are needed to conduct the clinical studies.

- Modifications to our DeepView System may require new clearances, approvals, De Novo classifications, certifications, or new or amended certifications, and may require us to cease marketing or to recall the modified device until clearances, approvals, De Novo classifications, or the relevant certifications are obtained.
- Quality problems and product liability claims could lead to recalls or safety alerts, reputational harm, adverse verdicts or costly settlements, and could have a material adverse effect on our business, results of operations, financial condition, and cash flows.
- We must comply with anti-kickback, fraud and abuse, false claims, transparency, and other healthcare laws and regulations.
- If our manufacturers fail to comply with the regulatory quality system regulations or any applicable equivalent regulations, our proposed operations could be interrupted, and our operating results would suffer.
- Actual or perceived failure to comply with data protection, privacy and security laws, regulations, standards and other requirements could negatively affect our business, financial condition or results of operations.
- As the regulatory framework for AI technology evolves, our business, financial condition and results of operation may be adversely affected.
- If we are unable to establish sales, marketing and distribution capabilities either on our own or in collaboration with third parties, we may not be successful in commercializing our DeepView System, if approved.
- We may not be able to achieve or maintain satisfactory pricing and margins for our DeepView technology.
- We will depend upon third-party suppliers, including contract manufacturers and single and sole source suppliers, making us vulnerable to supply shortages and price fluctuations that could negatively affect our business, financial condition and results of operations.
- We may encounter difficulties in managing our growth, which could disrupt our operations.
- The use of artificial intelligence, including machine learning, in our analytics platforms may result in reputational harm or liability.
- Product liability suits, whether or not meritorious, could be brought against us due to an alleged defective product or for the misuse of our DeepView System. These suits could result in expensive and time-consuming litigation, payment of substantial damages, and an increase in our insurance rates.
- The success of our algorithms depends on our significant repository of proprietary data.
- Changes in patent law or its interpretation could diminish the value of patents in general, thereby impairing our ability to protect our existing and future products.
- Our patent rights and other intellectual property may be subject to priority, ownership or inventorship disputes, interferences, and similar proceedings and we may not be able to enforce our intellectual property rights throughout the world.
- Nasdaq may delist our securities from trading on its exchange, which could limit investors' ability to make transactions in our securities and subject us to additional trading restrictions.
- We will incur increased costs as a result of operating as a public company, and the Company's management will be required to devote substantial time to new compliance and investor relations initiatives.

- The price of our common stock may be volatile.
- Changes in laws, regulations or rules, or a failure to comply with any laws, regulations or rules, may adversely affect our business, investments and results of operations.
- If we fail to maintain proper and effective internal controls over financial reporting, our ability to produce accurate and timely financial statements could be impaired, investors may lose confidence in our financial reporting and the trading price of our common stock may decline.
- Certain existing stockholders purchased, or may purchase, securities in the Company at a price below the current trading price of such securities and may experience a positive rate of return based on the current trading price. Future investors in the Company may not experience a similar rate of return.
- Warrants may become exercisable for common stock, which would increase the number of shares eligible for resale in the public market and result in dilution to our stockholders.

We have included important factors in the cautionary statements included in this prospectus and the documents we incorporate by reference herein and therein, particularly in the “Risk Factors” section of our Annual Report on Form 10-K for the fiscal year ended December 31, 2023 and in the “Risk Factors” section of our Quarterly Report on Form 10-Q for the fiscal quarter ended September 30, 2024, that we believe could cause actual results or events to differ materially from the forward-looking statements that we make. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures or investments we may make. No forward-looking statement is a guarantee of future performance.

You should read this prospectus, the applicable prospectus supplement, any related free-writing prospectus, and the documents incorporated by reference herein and therein completely and with the understanding that our actual future results, levels of activity, performance and events and circumstances may be materially different from what we expect. The forward-looking statements contained or incorporated by reference in the base prospectus, this prospectus supplement or any other prospectus supplement herein and therein represent our views as of the date of this prospectus supplement and are expressly qualified in their entirety by this cautionary statement. We anticipate that subsequent events and developments will cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we have no current intention of doing so except to the extent required by applicable law. You should, therefore, not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this prospectus.

USE OF PROCEEDS

We estimate that the net proceeds from the sale of our Common Stock in this offering will be approximately \$890,000, after deducting estimated offering expenses payable by us. We intend to use the net proceeds from this offering for working capital and general corporate purposes.

This expected use of the net proceeds from this offering and our existing cash represents our intentions based upon our current plans, financial condition and business conditions. The amount, timing and nature of specific expenditures of net proceeds from this offering will depend on a number of factors, including the timing, scope, progress and results of our development efforts and the timing and progress of any collaboration efforts. As of the date of this prospectus supplement, we cannot specify with certainty all of the particular uses of the proceeds from this offering. Accordingly, we will retain broad discretion over the use of such proceeds.

Pending our use of the net proceeds from this offering, we intend to invest the net proceeds in a variety of capital preservation investments, including short-term, investment-grade, interest-bearing instruments, and government securities.

DIVIDEND POLICY

We have never declared or paid dividends on our Common Stock and we do not anticipate paying any cash dividends on our Common Stock in the foreseeable future. Payment of cash dividends, if any, in the future will be at the discretion of our board of directors and will depend on applicable law and then-existing conditions, including our financial condition, operating results, contractual restrictions, capital requirements, business prospects and other factors our board of directors may deem relevant. We currently intend to retain all available funds and any future earnings to fund the development and growth of our business.

DILUTION

If you invest in this offering, your ownership interest will be diluted to the extent of the difference between the public offering price per share and the as adjusted net tangible book value per share after giving effect to this offering. We calculate net tangible book value per share by dividing the net tangible book value, which is tangible assets less total liabilities, by the number of outstanding shares of our Common Stock. Dilution represents the difference between the portion of the amount per share paid by purchasers of shares in this offering and the as adjusted net tangible book value per share of our Common Stock immediately after giving effect to this offering. Our net tangible book value as of September 30, 2024 was approximately \$19.6 million, or \$1.06 per share of Common Stock.

After giving effect to the sale of our Common Stock at a price of \$1.39 per share, the last reported sale price of our Common Stock on Nasdaq on November 13, 2024, and after deducting estimated aggregate offering expenses payable by us, our net tangible book value as of September 30, 2024 would have been approximately \$21.8 million, or \$1.08 per share of Common Stock. This represents no increase in the net tangible book value per share to our existing stockholders and an immediate increase in net tangible book value of 1.8% per share to new investors.

The following table illustrates this per share dilution:

Assumed offering price per share		\$	1.80
Net tangible book value per share as of September 30, 2024	\$	1.06	
Increase per share attributable to this offering	\$	<u>0.74</u>	
As adjusted net tangible book value per share as of September 30, 2024, after giving effect to this offering		\$	<u>20,523,858</u>
Increase per share to new investors purchasing shares in this offering			<u>1.8%</u>

The above table is based on 18,513,073 shares of our Common Stock outstanding as of September 30, 2024, and excludes:

- 3,786,191 shares of our Common Stock issuable upon the exercise of outstanding stock options at a weighted average exercise price of \$1.79 per share;
- 8,433,333 shares of our Common Stock issuable upon the exercise of outstanding and exercisable warrants at a weighted average exercise price of \$11.50 per share. (See “Risk Factors – You may experience future dilution as a result of future equity offerings or if we issue shares subject to options, warrants, stock awards or other arrangements.”); and
- 469,400 shares of our Common Stock issuable upon vesting of restricted stock units issued under our equity incentive plan.

Except as otherwise indicated, all information in this prospectus supplement assumes no exercise of the outstanding options or warrants described above. To the extent that any of these outstanding warrants or options are exercised at prices per share below the public offering price per share in this offering or we issue additional shares under our equity incentive plans at prices below the public offering price per share in this offering, you may experience further dilution. In addition, to the extent that we raise additional capital by issuing equity or convertible debt securities, your ownership will be further diluted.

PLAN OF DISTRIBUTION

Investors purchasing securities offered hereby will have the option to execute a securities purchase agreement with us. Investors who do not enter into a securities purchase agreement shall rely solely on this prospectus supplement in connection with the purchase of our securities in this offering. In addition to rights and remedies available to all purchasers in this offering under federal securities and state law, the purchasers which enter into a securities purchase agreement will also be able to bring claims of breach of contract against us.

We have also entered into the Securities Purchase Agreement directly with the Investor in connection with this offering. Pursuant to the Securities Purchase Agreement, the Investor agreed to purchase 500,000 shares of our Common Stock, at an offering price of \$1.80 per Share, with the Option to purchase additional Shares up to the lesser of (i) \$5,000,000 in aggregate proceeds or (ii) the remaining available capacity based on one-third of our public float. In the event the Option is exercised, the price of any Shares sold shall be the lesser (x) the closing price of our Common Stock on the previous trading day or (y) the 5-day volume-weighted average price of our Common Stock.

The securities were offered directly to the Investor without a placement agent, underwriter, broker or dealer. Our obligation to issue and sell securities to the Investor is subject to the conditions set forth in the Securities Purchase Agreement. The closing of this offering is subject to customary closing conditions.

The form of the Securities Purchase Agreement is included as an exhibit to our Current Report on Form 6-K that we will file in connection with the consummation of this offering. See “Where You Can Find More Information.”

Delivery of the shares of our Common Stock offered hereby is expected to occur on or about December 12, 2024, subject to satisfaction of certain customary closing conditions.

Fees and Expenses

We estimate that the total expenses for commencement of this offering will be approximately \$10,000. The remaining sales proceeds, after deducting any expenses payable by us and any transaction fees imposed by any governmental, regulatory, or self-regulatory organization in connection with the sales, will equal our net proceeds for the sale of such Common Stock.

Nasdaq Capital Market Listing

Our Common Stock is listed on Nasdaq under the symbol “MDAI.”

Transfer Agent

The transfer agent for our Shares is Continental Stock Transfer & Trust Company.

LEGAL MATTERS

The validity of the shares Common Stock offered hereby will be passed upon for us by Reed Smith LLP.

EXPERTS

The consolidated financial statements of Spectral AI, Inc. as of December 31, 2023 and 2022 and for each of the years in the two-year period ended December 31, 2023, have been incorporated by reference herein in reliance upon the report of KPMG LLP, independent registered public accounting firm, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus supplement and accompanying base prospectus is part of the registration statement on Form S-3 we filed with the SEC under the Securities Act and does not contain all the information set forth in the registration statement. Whenever a reference is made in this prospectus supplement or the accompanying base prospectus to any of our contracts, agreements or other documents, the reference may not be complete and you should refer to the exhibits that are a part of the registration statement or the exhibits to the reports or other documents incorporated by reference into this prospectus supplement for a copy of such contract, agreement or other document. Because we are subject to the information and reporting requirements of the Exchange Act, we file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the internet at the SEC's website at <http://www.sec.gov>.

These documents are also available, free of charge, through the Investors section of our website, which is located at <https://investors.spectral-ai.com/>. The reference to our website in this prospectus is an inactive textual reference only and is not a hyperlink. The contents of our website are not part of this prospectus, and you should not consider the contents of our website in making an investment decision with respect to our securities. This prospectus does not contain all of the information set forth in the registration statement. You can obtain a copy of the registration statement for free at www.sec.gov.

We have not incorporated by reference into this prospectus the information on our website, and you should not consider it to be a part of this prospectus.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to “incorporate by reference” the information we have filed with it, which means that we can disclose important information to you by referring you to those documents. The information we incorporate by reference is an important part of this prospectus, and later information that we file with the SEC will automatically update and supersede this information. We specifically are incorporating by reference the following documents filed with the SEC (excluding those portions of any Current Report on Form 8-K that are furnished and not deemed “filed” pursuant to the General Instructions of Form 8-K):

- our Annual Report on [Form 10-K](#) for the fiscal year ended December 31, 2023, filed with the SEC on March 29, 2024;
- our Quarterly Report on [Form 10-Q](#) for the fiscal quarter ended March 31, 2024, filed with the SEC on May 9, 2024, the Quarterly Report on [Form 10-Q](#) for the fiscal quarter ended June 30, 2024, filed with the SEC on August 12, 2024, and the Quarterly Report on [Form 10-Q](#) for the fiscal quarter ended September 30, 2024, filed with the SEC on November 6, 2024;
- our Current Reports on Form 8-K filed with the SEC on [February 2, 2024](#), [February 5, 2024](#), [February 12, 2024](#), [February 13, 2024](#), [February 22, 2024](#), [March 1, 2024](#), [March 22, 2024](#), [March 29, 2024](#), [April 1, 2024](#), [April 2, 2024](#), [May 16, 2024](#), [June 5, 2024](#), [June 24, 2024](#), [July 15, 2024](#), [August 13, 2024](#), [October 15, 2024](#) and [December 11, 2024](#) (other than any portions thereof deemed furnished and not filed);
- our Definitive Proxy Statement on [Schedule 14A](#), filed with the SEC on April 4, 2024 (but only with respect to information required by Part III of our Annual Report on Form 10-K for the year ended December 31, 2023, which information updated and superseded information included in Part III of our Annual Report on Form 10-K for the year ended December 31, 2023); and
- the description of our Common Stock contained in our [Form 10-K](#), filed with the Commission on March 29, 2024, and any amendment or report filed with the Commission for purposes of updating such description.

All reports and definitive proxy or information statements subsequently filed after the date of this initial registration statement and prior to effectiveness of this registration statement by the Company pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Exchange Act, but excluding information furnished to, rather than filed with, the SEC, shall be deemed to be incorporated by reference herein and to be a part hereof from the date such documents are filed.

Any statement contained herein or in any document incorporated or deemed to be incorporated by reference shall be deemed to be modified or superseded for purposes of the registration statement of which this prospectus forms a part to the extent that a statement contained in any other subsequently filed document which also is or is deemed to be incorporated by reference modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed to constitute a part of the registration statement of which this prospectus forms a part, except as so modified or superseded.

You should rely only on the information incorporated by reference or provided in this prospectus. We have not authorized anyone else to provide you with different information. You should not assume that the information in this prospectus is accurate as of any date other than the date of this prospectus or the date of the documents incorporated by reference in this prospectus.

We will provide without charge to each person to whom a copy of this prospectus is delivered, upon written or oral request, a copy of any or all of the information that has been incorporated by reference in this prospectus but not delivered with this prospectus (other than an exhibit to these filings, unless we have specifically incorporated that exhibit by reference in this prospectus). Any such request should be addressed to us at:

Spectral AI, Inc.
Attn: Vincent S. Capone, Esq.
Chief Financial Officer & General Counsel
2515 McKinney Ave, Suite 1000
Dallas, TX 75201
972-499-4934

You may also access the documents incorporated by reference in this prospectus through our website at <https://investors.spectral-ai.com/>. Except for the specific incorporated documents listed above, no information available on or through our website shall be deemed to be incorporated in this prospectus or the registration statement of which it forms a part.



Up to \$50,000,000 of Common Stock

From time to time, we may offer and sell, in one or more offerings, in amounts, at prices and on terms that we will determine at the time of such offering, up to \$50,000,000 in shares of our common stock, par value \$0.0001 (“common stock”). A portion of the proceeds may be used to repay a promissory note issued by our wholly-owned subsidiary, Spectral IP, Inc., to SIM Tech Licensing LLC on March 18, 2024, in the principal amount of \$1,000,000 (the “Spectral IP Note”). See “Use of Proceeds” for a description of the Spectral IP Note.

This prospectus describes the general terms of these securities and the general manner in which we will offer the securities. We will provide specific terms of any offering in a supplement to this prospectus. Any prospectus supplement may also add, update, or change information contained in this prospectus.

You should carefully read this prospectus and the applicable prospectus supplement as well as the documents incorporated or deemed to be incorporated by reference in this prospectus before you purchase any of the securities offered hereby. You should also read the documents we refer to in the “Where You Can Find More Information” section of this prospectus for information on us and our financial statements.

These securities may be offered and sold in the same offering or in separate offerings; to or through underwriters, dealers, and agents; or directly to purchasers. The names of any underwriters, dealers, or agents involved in the sale of our securities, their compensation and any over-allotment options held by them will be described in the applicable prospectus supplement. See “Plan of Distribution.”

Our common stock is listed on The Nasdaq Capital Market (the “Nasdaq”) under the symbol “MDAI.” On September 27, 2024, the last reported sale price of our common stock was \$1.21 per share as reported on the Nasdaq. We recommend that you obtain current market quotations for our common stock prior to making an investment decision. We will provide information in any applicable prospectus supplement regarding any listing of securities other than shares of our common stock on any securities exchange. This prospectus may not be used to sell our securities unless it is accompanied by a prospectus supplement.

We are an “emerging growth company” and a “smaller reporting company” under applicable federal securities laws and will be subject to reduced reporting requirements. This prospectus complies with the requirements that apply to an issuer that is an emerging growth company.

As of October 15, 2024, the aggregate market value of our outstanding common stock held by non-affiliates, or the public float, was approximately \$13,059,556, which was calculated based on 10,364,727 shares of our outstanding common stock held by non-affiliates and a price of \$1.26 per share, the last reported sale price for our common stock on October 15, 2024. As of the date of this prospectus, we have not offered or sold any securities pursuant to General Instruction I.B.6 of Form S-3 during the 12 calendar months prior to, and including, the date of this prospectus. Pursuant to General Instruction I.B.6. of Form S-3, in no event will we offer securities registered on this registration statement in a public primary offering with a value exceeding more than one-third of our public float (the market value of our common stock held by our non-affiliates) in any 12-month period so long as our public float remains below \$75.0 million.

You should carefully read this prospectus, any prospectus supplement relating to any specific offering of securities, and all information incorporated by reference herein and therein.

Investing in our securities involves a high degree of risk. These risks are discussed in this prospectus under “Risk Factors” beginning on page 4 and in the documents incorporated by reference in this prospectus.

Neither the Securities and Exchange Commission (the “SEC”) nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

The date of this prospectus is _____, 2024

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the SEC using a “shelf” registration process. Under this shelf process, we may, from time to time, offer and sell up to \$50,000,000 in shares of our common stock as described in this prospectus in one or more offerings.

This prospectus provides you with a general description of the securities we may offer. Each time we sell securities, we will provide a prospectus supplement that will contain specific information about the terms of that offering. The prospectus supplement may also add to, update or change information contained in the prospectus and, accordingly, to the extent inconsistent, information in this prospectus is superseded by the information in the prospectus supplement. We may also authorize one or more free writing prospectuses to be provided to you that may contain material information relating to the offering.

The prospectus supplement to be attached to the front of this prospectus may describe, as applicable: the terms of the securities offered; the public offering price; the price paid for the securities; net proceeds; and the other specific terms related to the offering of the securities.

You should only rely on the information contained or incorporated by reference in this prospectus and any prospectus supplement or issuer free writing prospectus relating to a particular offering. No person has been authorized to give any information or make any representations in connection with this offering other than those contained or incorporated by reference in this prospectus, any accompanying prospectus supplement and any related issuer free writing prospectus in connection with the offering described herein and therein, and, if given or made, such information or representations must not be relied upon as having been authorized by us. Neither this prospectus nor any prospectus supplement nor any related issuer free writing prospectus shall constitute an offer to sell or a solicitation of an offer to buy offered securities in any jurisdiction in which it is unlawful for such person to make such an offering or solicitation. This prospectus does not contain all of the information included in the registration statement. For a more complete understanding of the offering of the securities, you should refer to the registration statement, including its exhibits.

You should read the entire prospectus and any prospectus supplement and any related issuer free writing prospectus, as well as the documents incorporated by reference into this prospectus or any prospectus supplement or any related issuer free writing prospectus, together with the additional information described under “Where You Can Find More Information,” before making an investment decision. You should also carefully consider, among other things, the matters discussed in the section entitled “Risk Factors” herein. Neither the delivery of this prospectus or any prospectus supplement or any issuer free writing prospectus nor any sale made hereunder shall under any circumstances imply that the information contained or incorporated by reference herein or in any prospectus supplement or issuer free writing prospectus is correct as of any date subsequent to the date hereof or of such prospectus supplement or issuer free writing prospectus, as applicable. You should assume that the information appearing in this prospectus, any prospectus supplement or any document incorporated by reference is accurate only as of the date of the applicable documents, regardless of the time of delivery of this prospectus or any sale of securities. Our business, financial condition, results of operations and prospects may have changed since that date.

This prospectus contains forward-looking statements that are subject to a number of risks and uncertainties, many of which are beyond our control. See “Risk Factors” and “Cautionary Statement Regarding Forward Looking Statements” appearing in this prospectus and in the documents we file with the SEC that are incorporated by reference into this prospectus.

CAUTIONARY STATEMENT REGARDING FORWARD LOOKING STATEMENTS

This prospectus and the documents incorporated by reference herein contain forward-looking statements within the meaning of Section 27A of the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”). Any statements about our expectations, beliefs, plans, objectives, assumptions or future events or performance are not historical facts and may be forward-looking. These statements are often, but are not always, made through the use of words or phrases such as “anticipate,” “believe,” “contemplate,” “continue,” “could,” “estimate,” “expect,” “intend,” “may,” “plan,” “potential,” “predict,” “project,” “seek,” “should,” “target,” “will,” “would,” and similar expressions, or the negative of these terms, or similar expressions. Accordingly, these statements involve estimates, assumptions and uncertainties which could cause actual results to differ materially from those expressed in them. Any forward-looking statements are qualified in their entirety by reference to the factors discussed throughout this prospectus, and in particular those factors referenced in the section entitled “Risk Factors.”

The forward-looking statements contained in this prospectus are based on our current expectations and beliefs concerning future developments and their potential effects on us. There can be no assurance that future developments affecting us will be those that we have anticipated. These forward-looking statements involve a number of risks, uncertainties (some of which are beyond our control) or other assumptions that may cause actual results or performance to be materially different from those expressed or implied by these forward-looking statements. These risks and uncertainties include, but are not limited to, the following risks, uncertainties and other factors:

- We have incurred significant losses since inception and may not be able to achieve significant revenues or profitability.
- We are devoting substantially all of our efforts towards research and development of our DeepView System.
- We depend on government funding, which if lost or reduced, could have a material adverse effect on our research and development activities and our ability to commercialize our DeepView technology. Our largest contract is with the Biomedical Advanced Research and Development Authority (“BARDA”) and is the largest single source of revenue for us. Our BARDA contract is not guaranteed to be completed or extended.
- The regulatory review process is expensive, time-consuming, and uncertain and we may be unable to obtain clearance, approval, De Novo classification, or certification for our DeepView technology.
- We are highly dependent on our senior management, directors and key personnel, and our business could be harmed if we are unable to attract and retain personnel necessary for our success.
- We may experience significant delays in completing clinical trials, which could prevent or significantly delay our targeted product launch timeframe and impair our viability and business plan.
- New legislation and regulations and legislative and regulatory reforms may make it more difficult and costly for us to obtain regulatory clearance, approval, De Novo classification, or certification of our DeepView System, or to manufacture, market and distribute our device after clearance, approval, or classification is obtained.
- Disruptions at the FDA and foreign regulatory agencies caused by funding shortages or global health concerns could hinder their ability to hire and retain key leadership and other personnel, or otherwise prevent new products and services from being developed or commercialized in a timely manner, which could negatively impact our business.
- The ongoing labor shortage may limit our ability or the investigators’ ability to find and retain medical staff that are needed to conduct the clinical studies.
- Modifications to our DeepView System may require new clearances, approvals, De Novo classifications, certifications, or new or amended certifications, and may require us to cease marketing or to recall the modified device until clearances, approvals, De Novo classifications, or the relevant certifications are obtained.

- Quality problems and product liability claims could lead to recalls or safety alerts, reputational harm, adverse verdicts or costly settlements, and could have a material adverse effect on our business, results of operations, financial condition, and cash flows.
- We must comply with anti-kickback, fraud and abuse, false claims, transparency, and other healthcare laws and regulations.
- If our manufacturers fail to comply with the regulatory quality system regulations or any applicable equivalent regulations, our proposed operations could be interrupted, and our operating results would suffer.
- Actual or perceived failure to comply with data protection, privacy and security laws, regulations, standards and other requirements could negatively affect our business, financial condition or results of operations.
- As the regulatory framework for AI technology evolves, our business, financial condition and results of operation may be adversely affected.
- If we are unable to establish sales, marketing and distribution capabilities either on our own or in collaboration with third parties, we may not be successful in commercializing our DeepView System, if approved.
- We may not be able to achieve or maintain satisfactory pricing and margins for our DeepView technology.
- We will depend upon third-party suppliers, including contract manufacturers and single and sole source suppliers, making us vulnerable to supply shortages and price fluctuations that could negatively affect our business, financial condition and results of operations.
- We may encounter difficulties in managing our growth, which could disrupt our operations.
- The use of artificial intelligence, including machine learning, in our analytics platforms may result in reputational harm or liability.
- Product liability suits, whether or not meritorious, could be brought against us due to an alleged defective product or for the misuse of our DeepView System. These suits could result in expensive and time-consuming litigation, payment of substantial damages, and an increase in our insurance rates.
- The success of our algorithms depends on our significant repository of proprietary data.
- Changes in patent law or its interpretation could diminish the value of patents in general, thereby impairing our ability to protect our existing and future products.
- Our patent rights and other intellectual property may be subject to priority, ownership or inventorship disputes, interferences, and similar proceedings and we may not be able to enforce our intellectual property rights throughout the world.
- Nasdaq may delist our securities from trading on its exchange, which could limit investors' ability to make transactions in our securities and subject us to additional trading restrictions.
- We will incur increased costs as a result of operating as a public company, and the Company's management will be required to devote substantial time to new compliance and investor relations initiatives.

- The price of our common stock may be volatile.
- Changes in laws, regulations or rules, or a failure to comply with any laws, regulations or rules, may adversely affect our business, investments and results of operations.
- If we fail to maintain proper and effective internal controls over financial reporting, our ability to produce accurate and timely financial statements could be impaired, investors may lose confidence in our financial reporting and the trading price of our common stock may decline.
- Certain existing stockholders purchased, or may purchase, securities in the Company at a price below the current trading price of such securities and may experience a positive rate of return based on the current trading price. Future investors in the Company may not experience a similar rate of return.
- Warrants may become exercisable for common stock, which would increase the number of shares eligible for resale in the public market and result in dilution to our stockholders.

We have included important factors in the cautionary statements included in this prospectus and the documents we incorporate by reference herein and therein, particularly in the “Risk Factors” section of our Annual Report on Form 10-K for the fiscal year ended December 31, 2023 and in the “Risk Factors” section of our Quarterly Report on Form 10-Q for the fiscal quarter ended June 30, 2024, that we believe could cause actual results or events to differ materially from the forward-looking statements that we make. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures or investments we may make. No forward-looking statement is a guarantee of future performance.

You should read this prospectus, the applicable prospectus supplement, any related free-writing prospectus, and the documents incorporated by reference herein and therein completely and with the understanding that our actual future results, levels of activity, performance and events and circumstances may be materially different from what we expect. The forward-looking statements contained or incorporated by reference in this prospectus or any prospectus supplement herein and therein represent our views as of the date of this prospectus are expressly qualified in their entirety by this cautionary statement. We anticipate that subsequent events and developments will cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we have no current intention of doing so except to the extent required by applicable law. You should, therefore, not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this prospectus.

ABOUT SPECTRAL AI, INC.

Unless the context otherwise requires, references to the “Company,” “Spectral,” “we,” “us,” “our” and similar terms refer to Spectral AI, Inc. and its subsidiaries.

Overview

We are an AI company focused on predictive medical diagnostics. Our DeepView System uses proprietary AI algorithms to distinguish between fully damaged, partially damaged and healthy human tissue characters invisible to the naked eye, at the initial time point of wound presentation. The DeepView System delivers a binary prediction on the wounds capacity to heal or not-heal by a specified time point in the future. Our DeepView System’s output is specifically engineered to assist the physician in making a more accurate, timely and informed decision regarding the treatment of the patient’s wounds. Our focus from 2013 through 2021 was on the burn indication. In 2022, we expanded our focus to include the DFU indication.

Spectral AI is devoting substantially all of its efforts towards research and development of its DeepView[®] Wound Imaging System, currently focused on burn wounds and diabetic foot ulcer (“DFU”) indications, specifically engineered to allow physicians to make a more accurate, timely and informed decision for treatment options. The Company has not generated any product revenue to date. The Company currently generates revenue from contract development and research services by providing such services to governmental agencies, primarily to the Biomedical Advanced Research and Development Authority (“BARDA”) and under a contract with the Medical Technology Enterprise Consortium (“MTEC”).

In September 2023, the Company executed its third contract with BARDA for a multi-year Project BioShield (“PBS”) contract, valued at up to approximately \$150.0 million (the “PBS BARDA Contract”). This multi-year contract includes an initial award of nearly \$54.9 million to support the clinical validation and FDA clearance of DeepView[®] for commercial development and distribution purposes. The Company completed the second contract with BARDA, referred to as BARDA Burn II, which was signed in July 2019 and completed in November 2023. Under this contract, the Company furthered the DeepView System design, developed the AI algorithm, and took steps to obtain FDA approval.

In April 2023, the Company received a \$4.0 million grant from MTEC for a project that is expected to be completed by April 2025 (the “MTEC Agreement”). The MTEC Agreement is for the development of a handheld version of the DeepView System which is to be used to support military battlefield burn evaluation. The project has three phases, beginning with planning, design and testing; followed by development, design modification and buildout of the handheld device; and then the manufacturing of the handheld device. In September 2024, the Company received an additional \$800,000 from MTEC for the further development of the handheld device.

On March 7, 2024, the Company formed a new wholly-owned subsidiary, Spectral IP, Inc., a Delaware corporation (“Spectral IP”), to be utilized to advance artificial intelligence intellectual property with a specific emphasis on healthcare. On March 19, 2024, the Company announced that Spectral IP received a \$1.0 million investment from an affiliate of its largest shareholder for the development of its artificial intelligence intellectual property portfolio. The investment is structured as a note payable with a one-year maturity, an interest rate of 8%, and requiring earlier prepayment if the Company spins off Spectral IP to the Company’s shareholders or if Spectral IP is sold to a third party.

Corporate Information

Spectral AI, Inc., a Delaware corporation formerly known as Rosecliff Acquisition Corp I (“Rosecliff”) was formed as a blank check company on November 17, 2020. The Company was formed for the purpose of effecting a merger, capital stock exchange, asset acquisition, stock purchase, reorganization or similar business combination with one or more businesses.

On September 11, 2023, the Company consummated a business combination (the “Business Combination”), pursuant to the business combination agreement dated April 11, 2023 by and among the Company, Ghost Merger Sub I, a Delaware Corporation, Ghost Merger Sub II, a Delaware corporation and Spectral MD Holdings, Ltd., a Delaware corporation incorporated on March 9, 2009 and headquartered in Dallas, Texas (“Legacy Spectral”). Upon closing of the Business Combination (the “Closing”), in sequential order: (a) Ghost Merger Sub I merged with and into the Legacy Spectral, with Legacy Spectral continuing as the surviving company as a wholly owned subsidiary of the Company (the “Spectral Merger”) and then, (b) Legacy Spectral merged with and into Ghost Merger Sub II (renamed Spectral MD Holdings LLC) (the “SPAC Merger”, together with the Spectral Merger (the “Business Combination”)), with Ghost Merger Sub II surviving the SPAC Merger as a direct wholly-owned subsidiary of the Company. See Note 3. Upon the Closing, the Company changed its name from Rosecliff to Spectral AI, Inc.

In conjunction with the Business Combination, the Company cancelled the redeemable warrants that it issued to Rosecliff Acquisition Sponsor I LLC, a Delaware limited liability company (the “Sponsor”), in a private placement in connection with the Company’s initial public offering on February 17, 2021 (the “Initial Public Offering”) at Closing, but the 8,433,333 redeemable warrants issued to the public in the Initial Public Offering (the “Public Warrants”) remain outstanding.

Prior to the Business Combination, Rosecliff had 280,485 shares of Class A common stock, par value \$0.0001 per share, issued and outstanding and held by public shareholders (the “Public Shares”) and 6,325,000 shares of Class B common stock, par value \$0.0001 per share, issued and outstanding and held by the Sponsor (the “Sponsor Shares”). Upon the Closing, 5,445,000 of the Sponsor Shares were forfeited, in accordance with a letter agreement with the Sponsor, and the remaining 880,000 Sponsor Shares and 280,485 Public Shares, no longer designated Class A and Class B, were included in shares of the Company’s common stock, par value \$0.0001 per share (the “Company Common Stock”).

Prior to the Business Combination, Legacy Spectral’s shares of common stock, par value \$0.001 per share (“Legacy Spectral Common Stock”) were listed on the AIM market on the London Stock Exchange (delisted on September 7, 2023). In September 2023, prior to the Closing, Legacy Spectral issued 7,679,198 shares of Legacy Spectral Common Stock to certain investors in a private placement, in exchange for \$3.4 million (the “Equity Raise”). Upon the Closing, all of Legacy Spectral’s issued and outstanding 145,380,871 shares of Legacy Spectral Common Stock, including the shares from the Equity Raise, were exchanged for 14,094,450 shares of Company Common Stock at an exchange ratio of 10.31 (the “Exchange Ratio”), meaning that the Company issued one share of Company Common Stock in exchange for 10.31 shares of Legacy Spectral Common Stock.

On September 12, 2023, the Company began trading the Company Common Stock and the Public Warrants on the Nasdaq under the symbols “MDAI” and “MDAIW”, respectively. Prior to the Business Combination, the Company’s shares of Company Common Stock and Public Warrants were listed on the Nasdaq under the symbols “RCLF” and “RCLFW”, respectively.

Implications of Being an Emerging Growth Company and Smaller Reporting Company

We are an emerging growth company, as defined in the JOBS Act. The JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This provision allows an emerging growth company to delay the adoption of some accounting standards until those standards would otherwise apply to private companies. We have elected to use the extended transition period under the JOBS Act for the adoption of certain accounting standards until the earlier of the date we (i) are no longer an emerging growth company or (ii) affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act. As a result, our financial statements may not be comparable to companies that comply more promptly with new or revised accounting pronouncements as of public company effective dates.

In addition, as an emerging growth company, we may take advantage of specified reduced disclosure and other requirements that are otherwise applicable generally to public companies. These provisions include:

- being permitted to present only two years of audited consolidated financial statements in addition to any required unaudited interim consolidated financial statements, with correspondingly reduced disclosure in the section titled “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in this prospectus;

- an exception from compliance with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, as amended;
- reduced disclosure about our executive compensation arrangements in our periodic reports, proxy statements and registration statements;
- exemptions from the requirements of holding non-binding advisory votes on executive compensation or golden parachute arrangements; and

We may take advantage of these provisions until the last day of the fiscal year ending after the fifth anniversary of the Company's initial public offering or such earlier time that we no longer qualify as an emerging growth company. We will cease to qualify as an emerging growth company on the date that is the earliest of: (i) December 31, 2026; (ii) the last day of the fiscal year in which we have more than \$1.235 billion in total annual gross revenues; (iii) the date on which we are deemed to be a "large accelerated filer" under the rules of the SEC, which means the market value of our common stock that is held by non-affiliates exceeds \$700.0 million as of the prior June 30th and we have been a public company for at least 12 months and have filed one annual report on Form 10-K; or (iv) the date on which we have issued more than \$1.0 billion of non-convertible debt over the prior three-year period. We may choose to take advantage of some but not all of these reduced reporting burdens. Accordingly, the information contained herein may be different than you might obtain from other public companies in which you hold equity interests.

We are also a "smaller reporting company." If we are a smaller reporting company at the time we cease to be an emerging growth company, we may continue to rely on exemptions from certain disclosure requirements that are available to smaller reporting companies. Specifically, as a smaller reporting company, we may choose to present only the two most recent fiscal years of audited consolidated financial statements in our Annual Report and, similar to emerging growth companies, smaller reporting companies have reduced disclosure obligations regarding executive compensation.

Recent Developments

In September 2024, we received a letter with a draft Particulars of a Complaint from Stifel Nicolaus Europe Limited ("Stifel") in which Stifel contends that the Company owes Stifel approximately \$2,550,000 pursuant to a previous engagement letter entered into with Stifel on November 15, 2021 (the "Engagement Letter"). Stifel alleges that the Engagement Letter entitles them to a percentage of the value of the Company's Business Combination with Rosecliff. The Company further believes that we have substantial factual, legal and contractual defenses to the claims presented and will vigorously contest the claims, if ultimately brought. The Company also believes it has meritorious claims it is entitled to assert against Stifel and one or more of its representatives. However, the results of litigation are inherently unpredictable and the possibility exists that the ultimate resolution of this matter could result in a material effect on our financial position, results of operations or liquidity.

RISK FACTORS

Investing in our securities involves a high degree of risk. In addition to the other information contained in this prospectus and in the documents we incorporate by reference, you should carefully consider the specific factors discussed under the heading “Risk Factors” in the applicable prospectus supplement, together with all of the other information contained or incorporated by reference in the prospectus supplement or appearing or incorporated by reference in this prospectus. You should also consider the risks, uncertainties and assumptions discussed under Item 1A, “Risk Factors,” in our most recent Annual Report on Form 10-K or any updates in our Quarterly Reports on Form 10-Q, together with all other information appearing in or incorporated by reference into this prospectus or the applicable prospectus supplement, before deciding whether to purchase any securities being offered. The risks and uncertainties discussed in the foregoing are not the only ones facing us. Additional risks and uncertainties not presently known to us, or that we currently see as immaterial, may also harm our business. Past financial performance may not be a reliable indicator of future performance, and historical trends should not be used to anticipate results or trends in future periods. If any of these risks occur, our business, business prospects, financial condition or results of operations could be seriously harmed. This could cause the trading price of our common stock to decline, resulting in a loss of all or part of your investment. Please also read carefully the section above entitled “Cautionary Statement Regarding Forward-Looking Statements.”

USE OF PROCEEDS

Unless otherwise indicated to the contrary in an accompanying prospectus supplement or post-effective amendment, we will use the net proceeds from the sale of the securities covered by this prospectus for general corporate purposes, which may include, among other things, purchase of miners, repayment or refinancing of debt or funding acquisitions, capital expenditures or working capital.

Any specific allocation of the net proceeds of an offering of securities to a specific purpose will be determined at the time of such offering and will be described in the related prospectus supplement.

We cannot assure you that we will receive any proceeds in connection with securities which may be offered pursuant to this prospectus. Unless otherwise indicated in the applicable prospectus supplement, we will use the net proceeds from the sale of the securities covered by this prospectus to repay the Spectral IP Note or for general corporate purposes, which may include working capital, including research and development, expansion of our business, strategic transactions and other general corporate purposes. We have not determined the amounts we plan to spend on any of the areas listed above or the timing of these expenditures. As a result, our management will have broad discretion to allocate the net proceeds, if any, we receive in connection with securities offered pursuant to this prospectus for any purpose. Pending application of the net proceeds as described above, we may initially invest the net proceeds in investment-grade, interest-bearing securities such as money market funds, certificates of deposit, or direct or guaranteed obligations of the U.S. government, hold as cash or apply them to the reduction of short-term indebtedness.

A portion of the proceeds may be used to satisfy the Spectral IP Note in the principal amount of \$1,000,000. The Spectral IP Note currently bears interest at a rate equal to eight percent (8%) per annum and shall be due and payable in full on the earliest of March 18, 2025, or a Liquidation Event (as defined in the Spectral IP Note). The Spectral IP Note allows prepayment at any time without premium or penalty.

DESCRIPTION OF CAPITAL STOCK

The following description sets forth certain material terms and provisions of our securities that we may offer under this prospectus but is not complete. This description also summarizes relevant provisions of Delaware General Corporation Law (the “DGCL”). The following summary does not purport to be complete and is subject to, and is qualified in its entirety by reference to, the applicable provisions of the DGCL, our Charter and our Bylaws, copies of which are incorporated by reference as an exhibit to our Annual Report on Form 10-K. In addition, you should be aware that the summary below does not give full effect to the terms of the provisions of statutory or common law, and we encourage you to read our Charter, our Bylaws, and the applicable provisions of Delaware law for additional information.

The Charter authorizes the issuance of 81,000,000 shares of capital stock of the Company, consisting of (i) 80,000,000 shares of common stock, and (ii) 1,000,000 shares of preferred stock, par value \$0.0001 per share (the “preferred stock”). As of September 27, 2024, there were 18,513,073 shares of our common stock issued and outstanding and no shares of preferred stock issued and outstanding. The authorized and unissued shares of common stock and the authorized and undesignated shares of preferred stock are available for issuance without further action by our stockholders, unless such action is required by applicable law or the rules of any stock exchange on which our securities may be listed. Unless approval of our stockholders is so required, our board of directors does not intend to seek stockholder approval for the issuance and sale of our common stock or preferred stock.

Common Stock

Holders of our common stock are entitled to one vote for each share held on all matters submitted to a vote of stockholders and have no cumulative voting rights. Holders of our common stock are entitled to receive ratably dividends as may be declared by our board of directors out of funds legally available for that purpose, subject to any preferential dividend or other rights of any then outstanding preferred stock. We have never paid cash dividends on our common stock and do not anticipate paying any cash dividends in the foreseeable future but intend to retain our capital resources for reinvestment in our business. Any future disposition of dividends will be at the discretion of our board of directors and will depend upon, among other things, our future earnings, operating and financial condition, capital requirements, and other factors.

Holders of our common stock do not have preemptive or conversion rights or other subscription rights. On the liquidation, dissolution, distribution of assets or winding up of the Company, each holder of common stock will be entitled, pro rata on a per share basis, to all assets of the Company of whatever kind available for distribution to the holders of common stock, subject to the designations, preferences, limitations, restrictions and relative rights of any preferred stock then outstanding. The rights, preferences and privileges of holders of common stock are subject to and may be adversely affected by the rights of the holders of shares of any series of our preferred stock that we may designate and issue in the future.

Holders of common stock are entitled to cast one vote per share of common stock on all matters to be voted on by stockholders. Holders of common stock will vote together as a single class, and an action will be approved by stockholders if the number of votes cast in favor of the action exceeds the number of votes cast in opposition to the action, while directors will be elected by a plurality of the votes cast. Holders of common stock are not entitled to cumulate their votes in the election of directors. When a quorum is present at any meeting, any matter other than the election of directors to be voted upon by the stockholders at such meeting will be decided by a majority vote of the holders of shares of capital stock present or represented at the meeting and voting affirmatively or negatively on such matter. At all meetings of stockholders for the election of directors at which a quorum is present, a plurality of the votes cast will be sufficient to elect such directors.

Anti-Takeover Effects of Certain Provisions of the DGCL, our Charter and Bylaws

Section 203 of the DGCL affords us certain protections, such as prohibiting us from engaging in any business combination with any stockholder for a period of three years following the time that such stockholder (the “interested stockholder”) came to own at least 15% of our outstanding voting stock (the “acquisition”), except if:

- our board of directors approved the acquisition prior to its consummation;

- the interested stockholder owned at least 85% of the outstanding voting stock upon consummation of the acquisition; or
- the business combination is approved by our board of directors, and by a two-thirds vote of the other stockholders in a meeting.

Generally, a “business combination” includes any merger, consolidation, asset or stock sale, or certain other transactions resulting in a financial benefit to the interested stockholder. Subject to certain exceptions, an “interested stockholder” is a person who, together with that person’s affiliates and associates, owns, or within the previous three years owned, 15% or more of our voting stock.

Under certain circumstances, these anti-takeover provisions will make it more difficult for a person who would be an “interested stockholder” to effect various business combinations with us for a three-year period. This may encourage companies interested in acquiring us to negotiate in advance with our board of directors because the stockholder approval requirement would be avoided if our board of directors approves the acquisition that results in the stockholder becoming an interested stockholder.

This may also have the effect of preventing changes in our board of directors and may make it more difficult to accomplish transactions that stockholders may otherwise deem to be in their best interests.

Exclusive Forum

The Charter provides that, unless the Company consents in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware (the “Chancery Court”) shall be the sole and exclusive forum for any stockholder (including a beneficial owner) to bring: (i) any derivative action or proceeding brought on the Company’s behalf; (ii) any action, suit or proceeding asserting a claim of breach of fiduciary duty owed by any current or former director, officer or other employee, agent or stockholder of the Company to the Company or its stockholders; (iii) any action, suit or proceeding asserting a claim against the Company, its current or former directors, officers, or employees, agents or stockholders arising pursuant to any provision of the DGCL, the Charter or the Bylaws or (iv) any action, suit or proceeding asserting a claim against the Company, its current or former directors, officers, or employees, agents or stockholders governed by the internal affairs doctrine, and, if such action is filed in a court other than the Chancery Court (a “Foreign Action”) by any stockholder (including any beneficial owner), to the fullest extent permitted by law, such stockholder shall be deemed to have consented to (a) the personal jurisdiction of the Chancery Court in connection with any action brought in any such court; and (b) having service of process made upon such stockholder in any such action by service upon such stockholder’s counsel in the Foreign Action as agent for such stockholder.

The exclusive forum provision set forth above does not apply to, and does not preclude or contract the scope of, either (i) exclusive federal jurisdiction pursuant to Section 27 of the Securities and Exchange Act for claims seeking to enforce any liability or duty created by the Securities and Exchange Act or the rules and regulations thereunder, or any other claim for which the U.S. federal courts have exclusive jurisdiction, or (ii) concurrent jurisdiction under Section 22 of the Securities Act for federal and state courts over all claims seeking to enforce any liability or duty created by the Securities Act or the rules and regulations thereunder.

Potential Effects of Authorized but Unissued Stock

The Charter provides that certain shares of authorized but unissued common stock and preferred stock will be available for future issuances without stockholder approval and could be utilized for a variety of corporate purposes, including future public offerings, to raise additional capital, or to facilitate acquisitions. The existence of authorized but unissued and unreserved common stock and preferred stock could make more difficult or discourage an attempt to obtain control of the Company by means of a proxy contest, tender offer, merger, or otherwise.

Limitations of Director Liability and Indemnification of Directors, Officers and Employees

The DGCL authorizes corporations to limit or eliminate the personal liability of directors or officers of corporations and their stockholders for monetary damages for breaches of directors' or officers' fiduciary duties, subject to certain exceptions. The Charter includes a provision that eliminates the personal liability of directors or officers for monetary damages for any breach of fiduciary duty as a director or officer except to the extent such exemption from liability or limitation thereof is not permitted under the DGCL as the same exists or may hereafter be amended.

The Bylaws provide that the Company must indemnify and hold harmless the directors and officers of the Company to the fullest extent authorized by the DGCL. The Company may purchase and maintain insurance on behalf of any person who is or was a director, officer, employee or agent of the Company, or is or was serving at the request of the Company as a director, officer, employee or agent of another corporation, partnership, joint venture, trust enterprise or non-profit entity against any liability asserted against him or her and incurred by him or her in any such capacity, or arising out of his or her status as such, whether or not the Company would have the power to indemnify him or her against such liability under the provisions of the DGCL.

The limitation of liability, advancement and indemnification provisions in the Charter and Bylaws may discourage stockholders from bringing lawsuits against directors or officers for breach of their fiduciary duties. These provisions also may have the effect of reducing the likelihood of derivative litigation against directors and officers, even though such an action, if successful, might otherwise benefit the Company and its stockholders. In addition, your investment may be adversely affected to the extent the Company pays the costs of settlement and damage awards against directors and officers pursuant to these indemnification provisions.

Listing

Our Common Stock is listed on Nasdaq under the symbol "MDAI".

Transfer Agent and Registrar

The Transfer Agent and Registrar for our common stock is Continental Stock Transfer & Trust Co.

PLAN OF DISTRIBUTION

We may sell the securities offered pursuant to this prospectus from time to time in one or more transactions, including, without limitation:

- to or through underwriters or initial purchasers;
- through broker-dealers (acting as agent or principal);
- through agents;
- directly by us to one or more purchasers (including our affiliates and stockholders), through a specific bidding or auction process, a rights offering or otherwise;
- through a combination of any such methods of sale; or
- through any other methods described in a prospectus supplement or free writing prospectus.

In addition, we may enter into derivative or hedging transactions with third parties, or sell securities not covered by this prospectus to third parties in privately negotiated transactions. In connection with such a transaction, the third parties may sell securities covered by and pursuant to this prospectus and any accompanying prospectus supplement. If so, the third party may use securities borrowed from us or others to settle such sales and may use securities received from us to close out any related short positions. We may also loan or pledge securities covered by this prospectus and any accompanying prospectus supplement to third parties, who may sell the loaned securities or, in an event of default in the case of a pledge, sell the pledged securities pursuant to this prospectus and any accompanying prospectus supplement.

The distribution of securities may be effected, from time to time, in one or more transactions, including:

- block transactions (which may involve crosses) and transactions on the Nasdaq or any other organized market where the securities may be traded;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its own account pursuant to a prospectus supplement or free writing prospectus;
- ordinary brokerage transactions and transactions in which a broker-dealer solicits purchasers;
- sales “at the market” to or through a market maker or into an existing trading market, on an exchange or otherwise; and
- sales in other ways not involving market makers or established trading markets, including direct sales to purchasers.

The applicable prospectus supplement or free writing prospectus will describe the terms of the offering of the securities, including:

- the name or names of any underwriters, if, and if required, any dealers or agents;
- the terms of the offering;
- the purchase price of the securities and the proceeds we will receive from the sale;
- the delayed delivery arrangements;
- any underwriting discounts and other items constituting underwriters’ compensation;
- any discounts or concessions allowed or re-allowed or paid to dealers; and
- any securities exchange or market on which the securities may be listed or traded.

We may distribute the securities from time to time in one or more transactions at:

- a fixed price or prices, which may be changed;
- market prices prevailing at the time of sale;
- prices related to such prevailing market prices; or
- negotiated prices.

If underwriters are used in an offering, only underwriters named in the prospectus supplement are underwriters of the securities offered by the prospectus supplement.

If underwriters are used in an offering, we will execute an underwriting agreement with such underwriters and will specify the name of each underwriter and the terms of the transaction (including any underwriting discounts and other terms constituting compensation of the underwriters and any dealers) in a prospectus supplement. The securities may be offered to the public either through underwriting syndicates represented by managing underwriters or directly by one or more investment banking firms or others, as designated. If an underwriting syndicate is used, the managing underwriter(s) will be specified on the cover of the prospectus supplement. If underwriters are used in the sale, the offered securities will be acquired by the underwriters for their own accounts and may be resold from time to time in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of sale. Any public offering price and any discounts or concessions allowed or reallocated or paid to dealers may be changed from time to time. Unless otherwise set forth in the prospectus supplement, the obligations of the underwriters to purchase the offered securities will be subject to conditions precedent, and the underwriters will be obligated to purchase all of the offered securities, if any are purchased.

We may grant to the underwriters options to purchase additional securities to cover over-allotments, if any, at the public offering price, with additional underwriting commissions or discounts, as may be set forth in a related prospectus supplement. The terms of any over-allotment option will be set forth in the prospectus supplement for those securities.

If we use a dealer in the sale of the securities being offered pursuant to this prospectus or any prospectus supplement, we will sell the securities to the dealer, as principal. The dealer may then resell the securities to the public at varying prices to be determined by the dealer at the time of resale. The names of the dealers and the terms of the transaction will be specified in a prospectus supplement.

We may sell the securities directly or through agents we designate from time to time. We will name any agent involved in the offering and sale of securities and we will describe any commissions we will pay the agent in the prospectus supplement. Unless the prospectus supplement states otherwise, any agent will act on a best-efforts basis for the period of its appointment.

We may authorize agents or underwriters to solicit offers by institutional investors to purchase securities from us at the public offering price set forth in the prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on a specified date in the future. We will describe the conditions of these contracts and the commissions we must pay for solicitation of these contracts in the prospectus supplement.

In connection with the sale of the securities, underwriters, dealers or agents may receive compensation from us or from purchasers of the securities for whom they act as agents, in the form of discounts, concessions or commissions. Underwriters may sell the securities to or through dealers, and those dealers may receive compensation in the form of discounts, concessions or commissions from the underwriters or commissions from the purchasers for whom they may act as agents. Underwriters, dealers and agents that participate in the distribution of the securities, and any institutional investors or others that purchase securities directly for the purpose of resale or distribution, may be deemed to be underwriters, and any discounts or commissions received by them from us and any profit on the resale of the common stock by them may be deemed to be underwriting discounts and commissions under the Securities Act of 1933, as amended.

We may provide agents, underwriters and other purchasers with indemnification against particular civil liabilities, including liabilities under the Securities Act of 1933, as amended, or contribution with respect to payments that the agents, underwriters or other purchasers may make with respect to such liabilities. Agents and underwriters may engage in transactions with, or perform services for, us in the ordinary course of business.

To facilitate the public offering of a series of securities, persons participating in the offering may engage in transactions that stabilize, maintain, or otherwise affect the market price of the securities. This may include over-allotments or short sales of the securities, which involves the sale by persons participating in the offering of more securities than have been sold to them by us. In addition, those persons may stabilize or maintain the price of the securities by bidding for or purchasing securities in the open market or by imposing penalty bids, whereby selling concessions allowed to underwriters or dealers participating in any such offering may be reclaimed if securities sold by them are repurchased in connection with stabilization transactions. The effect of these transactions may be to stabilize or maintain the market price of the securities at a level above that which might otherwise prevail in the open market. Such transactions, if commenced, may be discontinued at any time. We make no representation or prediction as to the direction or magnitude of any effect that the transactions described above, if implemented, may have on the price of our securities.

Unless otherwise specified in the applicable prospectus supplement, any common stock sold pursuant to a prospectus supplement will be eligible for listing on the Nasdaq, subject to official notice of issuance. Any underwriters to whom securities are sold by us for public offering and sale may make a market in the securities, but such underwriters will not be obligated to do so and may discontinue any market making at any time without notice.

In order to comply with the securities laws of some states, if applicable, the securities offered pursuant to this prospectus will be sold in those states only through registered or licensed brokers or dealers. In addition, in some states securities may not be sold unless they have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and complied with.

LEGAL MATTERS

Unless otherwise specified in the applicable prospectus supplement, the validity of the securities offered by this prospectus will be passed upon for us by Reed Smith LLP. If legal matters in connection with offerings made by this prospectus are passed on by counsel for the underwriters, dealers or agents, if any, that counsel will be named in the applicable prospectus supplement.

EXPERTS

The consolidated financial statements of Spectral AI, Inc. as of December 31, 2023 and 2022 and for each of the years in the two-year period ended December 31, 2023, have been incorporated by reference herein in reliance upon the report of KPMG LLP, independent registered public accounting firm, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We are subject to the informational requirements of the Exchange Act, and in accordance therewith file annual, quarterly and current reports, proxy statements and other information with the SEC. The SEC maintains an internet website at www.sec.gov that contains periodic and current reports, proxy and information statements and other information regarding registrants that are filed electronically with the SEC.

These documents are also available, free of charge, through the Investors section of our website, which is located at <https://investors.spectral-ai.com/>.

We have filed with the SEC a registration statement under the Securities Act of 1933, as amended, relating to the offering of these securities. The registration statement, including the attached exhibits, contains additional relevant information about us and the securities. This prospectus does not contain all of the information set forth in the registration statement. You can obtain a copy of the registration statement for free at www.sec.gov. The registration statement and the documents referred to below under “Incorporation of Documents by Reference” are also available on our website, <https://investors.spectral-ai.com/>. The reference to our website in this prospectus is an inactive textual reference only and is not a hyperlink. The contents of our website are not part of this prospectus, and you should not consider the contents of our website in making an investment decision with respect to our securities.

We have not incorporated by reference into this prospectus the information on our website, and you should not consider it to be a part of this prospectus.

INCORPORATION OF DOCUMENTS BY REFERENCE

The SEC allows us to “incorporate by reference” the information we have filed with it, which means that we can disclose important information to you by referring you to those documents. The information we incorporate by reference is an important part of this prospectus, and later information that we file with the SEC will automatically update and supersede this information. We specifically are incorporating by reference the following documents filed with the SEC (excluding those portions of any Current Report on Form 8-K that are furnished and not deemed “filed” pursuant to the General Instructions of Form 8-K):

- our Annual Report on [Form 10-K](#) for the fiscal year ended December 31, 2023, filed with the SEC on March 29, 2024;
- our Quarterly Report on [Form 10-Q](#) for the fiscal quarter ended March 31, 2024, filed with the SEC on May 9, 2024, and Quarterly Report on [Form 10-Q](#) for the fiscal quarter ended June 30, 2024, filed with the SEC on August 12, 2024;
- our Current Reports on Form 8-K filed with the SEC on [February 2, 2024](#), [February 5, 2024](#), [February 12, 2024](#), [February 13, 2024](#), [February 22, 2024](#), [March 1, 2024](#), [March 22, 2024](#), [March 29, 2024](#), [April 1, 2024](#), [April 2, 2024](#), [May 16, 2024](#), [June 5, 2024](#), [June 24, 2024](#), [July 15, 2024](#), [August 13, 2024](#) and [October 15, 2024](#) (other than any portions thereof deemed furnished and not filed);
- our Definitive Proxy Statement on [Schedule 14A](#), filed with the SEC on April 4, 2024 (but only with respect to information required by Part III of our Annual Report on Form 10-K for the year ended December 31, 2023, which information updated and superseded information included in Part III of our Annual Report on Form 10-K for the year ended December 31, 2023); and
- the description of our common stock contained in our [Form 10-K](#), filed with the Commission on March 29, 2024, and any amendment or report filed with the Commission for purposes of updating such description.

All reports and definitive proxy or information statements subsequently filed after the date of this initial registration statement and prior to effectiveness of this registration statement by the Company pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Exchange Act, but excluding information furnished to, rather than filed with, the SEC, shall be deemed to be incorporated by reference herein and to be a part hereof from the date such documents are filed.

Any statement contained herein or in any document incorporated or deemed to be incorporated by reference shall be deemed to be modified or superseded for purposes of the registration statement of which this prospectus forms a part to the extent that a statement contained in any other subsequently filed document which also is or is deemed to be incorporated by reference modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed to constitute a part of the registration statement of which this prospectus forms a part, except as so modified or superseded.

You should rely only on the information incorporated by reference or provided in this prospectus. We have not authorized anyone else to provide you with different information. You should not assume that the information in this prospectus is accurate as of any date other than the date of this prospectus or the date of the documents incorporated by reference in this prospectus.

We will provide without charge to each person to whom a copy of this prospectus is delivered, upon written or oral request, a copy of any or all of the information that has been incorporated by reference in this prospectus but not delivered with this prospectus (other than an exhibit to these filings, unless we have specifically incorporated that exhibit by reference in this prospectus). Any such request should be addressed to us at:

Spectral AI, Inc.
Attn: Vincent S. Capone, Esq.
Chief Financial Officer & General Counsel
2515 McKinney Ave, Suite 1000
Dallas, TX 75201
972-499-4934

You may also access the documents incorporated by reference in this prospectus through our website at <https://investors.spectral-ai.com/>. Except for the specific incorporated documents listed above, no information available on or through our website shall be deemed to be incorporated in this prospectus or the registration statement of which it forms a part.