

PROSPECTUS

BIGBEAR.AI HOLDINGS, INC.

113,250,000 Shares of Common Stock

This prospectus relates to the resale from time to time of up to 113,250,000 shares of our common stock, par value \$0.0001 per share (“*Common Stock*”), by the selling stockholders named in this prospectus (each a “*Selling Stockholder*,” and, collectively, the “*Selling Stockholders*”). See “*Selling Stockholders*” for the price that the Selling Stockholders paid for the common stock that are being registered for resale with this prospectus. Additionally, the shares being registered for resale will constitute a considerable percentage of our public float. Certain of the shares being registered for resale were purchased by the corresponding selling stockholders for prices considerably below the current market price of our common stock.

On December 7, 2021, we consummated the business combination (the “*Business Combination*”) contemplated by that certain Agreement and Plan of Merger, dated as of June 4, 2021 (as amended on August 6, 2021 and November 29, 2021 and as may be further amended, supplemented or otherwise modified from time to time, the “*Merger Agreement*”), by and among GigCapital4, Inc., a Delaware corporation (“*GigCapital4*”), GigCapital4 Merger Sub Corporation, a Delaware corporation and a wholly owned subsidiary of GigCapital4 (“*Merger Sub*”), BigBear.ai Holdings, LLC, a Delaware limited liability company, and BBAI Ultimate Holdings, LLC, a Delaware limited liability company (“*Ultimate*”), whereby (a) Merger Sub merged with and into BigBear.ai Holdings, LLC (the “*First Merger*”), with BigBear.ai Holdings, LLC as the surviving company in the First Merger and as a wholly owned subsidiary of GigCapital4, and, immediately after the First Merger, (b) BigBear.ai Holdings, LLC merged with and into GigCapital4 (the “*Second Merger*,” and together with the First Merger, the “*Mergers*”), with GigCapital4 as the surviving entity in the Second Merger. In connection with the closing of the Business Combination, on December 7, 2021, GigCapital4 changed its name from GigCapital4, Inc. to BigBear.ai Holdings, Inc.

Of the shares hereby registered for resale: 105,000,000 were received as merger consideration in exchange for equity of BigBear.ai Holdings, LLC, pursuant to the Merger Agreement; 8,000,000 were purchased in connection with the Backstop Subscription Agreement, dated November 29, 2021 (as amended, the “*Backstop Subscription Agreement*”), by and between the Company and a Selling Stockholder, which was entered into in connection with the Business Combination; and 250,000 were received from the Sponsor (as defined herein) pursuant to the Stock Transfer Agreement, dated December 6, 2021, (as amended, the “*Stock Transfer Agreement*”) by and among the Company, the Sponsor and a Selling Stockholder to induce such Selling Stockholder to enter into the Backstop Subscription Agreement.

We will bear all costs, expenses and fees in connection with the registration of the Common Stock and will not receive any proceeds from the sale of such securities. The Selling Stockholders will bear all commissions and discounts, if any, attributable to their respective sales of the Common Stock.

The Selling Stockholders may offer such shares from time to time as it may determine through public or private transactions or through other means described in the section entitled “*Plan of Distribution*” at prevailing market prices, at prices related to prevailing market prices or at privately negotiated prices. This prospectus does not necessarily mean that the Selling Stockholders will offer or sell the shares. We cannot predict when or in what amounts the Selling Stockholders may sell any of the shares offered by this prospectus. Because all of the shares offered under this prospectus are being offered by the Selling Stockholders, we cannot currently determine the price or prices at which our shares may be sold under this prospectus. The Selling Stockholders are “underwriters” within the meaning of Section 2(a)(11) of the Securities Act of 1933, as amended (the “*Securities Act*”) and are subject to the prospectus delivery requirements of the Securities Act.

You should read this prospectus and any prospectus supplement or amendment carefully before you invest in our securities. Our Common Stock is listed on The New York Stock Exchange (“*NYSE*”) under the symbol “*BBAI*.” On April 24, 2023, the closing sale price of our Common Stock was \$2.51.

We are an “emerging growth company” under applicable federal securities laws and will be subject to reduced public company reporting requirements.

Investing in our securities involves risks. See “[Risk Factors](#)” on page 7, and any applicable prospectus supplement, and under similar headings in the other documents that are incorporated by reference into this prospectus.

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

The date of this prospectus is April 25, 2023.

TABLE OF CONTENTS

ABOUT THIS PROSPECTUS	iii
WHERE YOU CAN FIND MORE INFORMATION	iv
INCORPORATION OF DOCUMENTS BY REFERENCE	v
CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS	vi
SUMMARY OF THE PROSPECTUS	1
THE OFFERING	6
RISK FACTORS	7
USE OF PROCEEDS	8
SELLING STOCKHOLDERS	9
PLAN OF DISTRIBUTION	10
LEGAL MATTERS	12
EXPERTS	12

[Table of Contents](#)

You should rely only on the information contained in this prospectus. No one has been authorized to provide you with information that is different from that contained in this prospectus. This prospectus is dated as of the date set forth on the cover hereof. You should not assume that the information contained in this prospectus is accurate as of any date other than that date.

For investors outside the United States: We have not done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. You are required to inform yourselves about and to observe any restrictions relating to this offering and the distribution of this prospectus.

ABOUT THIS PROSPECTUS

This prospectus is a part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission (the “SEC”), using a “shelf” registration process. Under this shelf registration process, the Selling Stockholders may, from time to time, sell the shares of Common Stock offered by them described in this prospectus. We will not receive any proceeds from the sale by such Selling Stockholder of the Shares offered by them described in this prospectus.

This prospectus does not include all of the information that is in the registration statement. We omitted certain parts of the registration statement from this prospectus as permitted by the SEC. We refer you to the registration statement and its exhibits for additional information about us and the securities that may be sold under this prospectus.

Neither we nor the Selling Stockholders have authorized anyone to provide you with any information or to make any representations other than those contained in this prospectus or any applicable prospectus supplement or any free writing prospectus prepared by or on behalf of us or to which we have referred you. Neither we nor the Selling Stockholders take responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. Neither we nor the Selling Stockholders will make an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should not assume that the information contained in or incorporated by reference in this prospectus is accurate as of any date other than the respective dates of such document. Our business, financial condition, results of operations and prospects may have changed since those dates.

We may also provide a prospectus supplement or post-effective amendment to the registration statement to add information to, or update or change information contained in, this prospectus. You should read both this prospectus and any applicable prospectus supplement or post-effective amendment to the registration statement together with the additional information to which we refer you in the section of this prospectus entitled “*Where You Can Find More Information.*”

Unless otherwise specified, references to the “*Company*,” “*we*,” “*us*” or “*our*,” are to, (i) prior to the closing of the business combination (the “*Business Combination*”) contemplated by that certain Agreement and Plan of Merger, dated as of June 4, 2021 (as amended on August 6, 2021 and November 29, 2021, the “*Merger Agreement*”), by and among GigCapital4, Inc., a Delaware corporation (“*GigCapital4*”), GigCapital4 Merger Sub Corporation, a Delaware corporation and a wholly owned subsidiary of GigCapital4 (“*Merger Sub*”), BigBear.ai Holdings, LLC, a Delaware limited liability company (“*BigBear.ai Holdings, LLC*”), and BBAI Ultimate Holdings, LLC, a Delaware limited liability company (“*Ultimate*”), either (x) BigBear.ai Holdings, LLC (formerly known as Lake Intermediate, LLC) and its subsidiaries or (y) GigCapital4, as the context may require, and (ii) following the closing of the Business Combination, BigBear.ai Holdings, Inc. and its subsidiaries. Unless the section herein specifies otherwise, references to “*BigBear*” are to (i) prior to the closing of the Business Combination, Ultimate and its subsidiaries and (ii) following the closing of the Business Combination, BigBear.ai Holdings, Inc. and its subsidiaries.

WHERE YOU CAN FIND MORE INFORMATION

We have filed a registration statement on Form S-3, including exhibits, under the Securities Act, with respect to the Common Stock offered by this prospectus. This prospectus does not contain all of the information included or incorporated by reference in the registration statement. For further information pertaining to us and our securities, you should refer to the registration statement and our exhibits or the exhibits to the reports or other documents incorporated by reference into this prospectus.

In addition, we file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public on a website maintained by the SEC located at <http://www.sec.gov>. We also maintain a website at <https://ir.bigbear.ai>, where you may access these materials free of charge. Information contained on or accessible through our website is not a part of this prospectus, and the inclusion of our website address in this prospectus is an inactive textual reference only. If you would like additional copies of this prospectus, you should contact us at the following address and telephone number:

BigBear.ai Holdings, Inc.
6811 Benjamin Franklin Drive, Suite 200
Columbia, Maryland 21046
(410) 312-0885

INCORPORATION OF DOCUMENTS BY REFERENCE

The SEC allows us to “incorporate by reference” into this prospectus the information we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus, and information in documents that we file later with the SEC will automatically update and supersede information in this prospectus. We incorporate by reference into this prospectus the documents listed below and any future filings, including all filings made after the date of the filing of the registration statement of which this prospectus is a part and prior to the effectiveness of such registration statement, made by us with the SEC under Section 13(a), 13(c), 14 or 15(d) of the Exchange Act, except for information “furnished” under Items 2.02, 7.01 or 9.01 on Form 8-K or other information “furnished” to the SEC, which is not deemed filed and not incorporated in this prospectus, until the termination of the offering of securities described in the applicable prospectus supplement. We hereby incorporate by reference the following documents:

- our Annual Report on [Form 10-K](#) for the year ended December 31, 2022, as filed with the SEC on March 31, 2023, as amended by Amendment No. 1 to our Annual Report on [Form 10-K/A](#), as filed with the SEC on April 7, 2023;
- our Current Reports on Form 8-K filed with the SEC on [January 4, 2023](#), [January 19, 2023](#) and [March 24, 2023](#) (excluding any information furnished but not filed in such reports under Item 2.02, Item 7.01, or Item 9.01);
- the description of our securities contained in our Registration Statement on [Form S-1](#), as filed with the SEC on December 23, 2021, including any amendment or report filed for the purpose of updating such description.

Any statement contained in a document incorporated or deemed to be incorporated by reference into this prospectus will be deemed modified, superseded or replaced for purposes of this prospectus to the extent that a statement contained in this prospectus modifies, supersedes or replaces such statement.

You may request a copy of these filings, at no cost, by writing or telephoning us at the following address:

BigBear.ai Holdings, Inc.
6811 Benjamin Franklin Drive, Suite 200
Columbia, Maryland 21046
(410) 312-0885

Copies of these filings are also available, without charge, on the SEC’s website at <http://www.sec.gov> and on our website at <https://ir.bigbear.ai> as soon as reasonably practicable after they are filed electronically with the SEC. The information contained on our website is not a part of this prospectus and is not incorporated by reference into, this prospectus or the registration statement of which it forms a part.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

Certain statements included in this prospectus, any prospectus supplement and the documents incorporated by reference hereto or therein that are not historical facts are forward-looking statements for purposes of the safe harbor provisions under the United States Private Securities Litigation Reform Act of 1995, to the extent those safe harbor provisions are determined to be available. Forward-looking statements generally are accompanied by words such as “believe,” “may,” “will,” “estimate,” “continue,” “anticipate,” “intend,” “expect,” “should,” “would,” “plan,” “predict,” “potential,” “seem,” “seek,” “future,” “outlook,” and similar expressions that predict or indicate future events or trends or that are not statements of historical matters. These forward-looking statements include, but are not limited to, statements regarding BigBear’s industry, future events, and other statements that are not historical facts. These forward-looking statements are based on current expectations and beliefs concerning future developments and their potential effects on us and should not be relied upon as representing BigBear’s assessments as of any date subsequent to the date of this prospectus. There can be no assurance that future developments affecting us will be those that we have anticipated. These forward-looking statements are also subject to a number of risks and 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, including, but not limited to, risks relating to the following:

- our limited operating history as a combined company, which makes it difficult to evaluate our current business and future prospects;
- our ability to sustain our revenue growth in the future;
- our ability to execute our strategy to grow our business and increase our sales and the number and types of markets we compete in;
- the length of our sales cycle and the time and expense associated with it;
- our ability to grow our customer base and to expand our relationships with our existing customers, including with our government customers;
- our reliance on customers in the public/government sector;
- the market and our customers accepting and adopting our products, including our future new product offerings;
- the impact of health epidemics, including the COVID-19 pandemic, on our business, financial condition, growth, and the actions we may take in response thereto;
- competition in our industry;
- our ability to gain contracts on favorable terms, including with our government customers;
- our ability to successfully compete for and receive task orders and generate revenue under Indefinite Delivery/Indefinite Quantity contracts;
- our ability to grow, maintain and enhance our brand and reputation;
- security and our technology, including cybersecurity;
- our ability to maintain competitive pricing for our products;
- our ability to secure financing necessary to operate and grow our business as planned, including through acquisitions;
- the high degree of uncertainty of the level of demand for, and market utilization of, our solutions and products;
- substantial regulation and the potential for unfavorable changes to, or failure by us to comply with, these regulations, which could substantially harm our business and operating results;
- our dependency upon third-party service providers for certain technologies;

Table of Contents

- increases in costs, disruption of supply or shortage of materials, which could harm our business;
- developments and projections relating to our competitors and industry;
- the unavailability, reduction or elimination of government and economic incentives, which could have a material adverse effect on our business, prospects, financial condition and operating results;
- our existing debt and our ability to refinance it on more favorable terms;
- our management team's limited experience managing a public company;
- our ability to hire, retain, train and motivate qualified personnel and senior management and ability to deploy our personnel and resources to meet customer demand;
- our ability to successfully execute future joint ventures, channel sales relationships, platform partnerships, strategic alliances and subcontracting opportunities;
- our ability to grow through acquisitions and successfully integrate any such acquisitions;
- our ability to successfully maintain, protect, enforce and grow our intellectual property rights;
- our compliance with governmental laws, trade controls, customs requirements and other regulations we are subject to;
- the possibility of our need to defend ourselves against fines, penalties and injunctions if we are determined to be promoting products for unapproved uses or otherwise found to have violated a law or regulation;
- concentration of ownership among our existing executive officers, directors and their respective affiliates, which may prevent new investors from influencing significant corporate decisions;
- the effect of economic downturns, depressions and recessions;
- not obtaining the benefits of the Business Combination expected by investors or securities analysts, and the potential for the market price of our securities to decline;
- disruptions to the plans and operations of our business as a result of the Business Combination and any future acquisitions, mergers, dispositions, joint ventures or investments we make; and
- our significantly increased expenses and administrative burdens as a public company and any resulting adverse effect on our business, financial condition and results of operations.

Should one or more of these risks or uncertainties materialize, or should any of our assumptions prove incorrect, actual results may vary in material respects from those projected in these forward-looking statements.

Some of these risks and uncertainties may in the future be amplified by the COVID-19 outbreak and there may be additional risks that we consider immaterial or which are unknown. It is not possible to predict or identify all such risks. Accordingly, undue reliance should not be placed upon the forward-looking statements. We do not undertake any obligation to update or revise any forward-looking statements whether as a result of new information, future events or otherwise, except as may be required under applicable securities laws.

In particular, you should consider the numerous risks described in our Annual Report on Form 10-K for the period ended December 31, 2022, and as described or may be described in any subsequent Annual Report on Form 10-K or any Quarterly Report on Form 10-Q under the heading "*Item 1A. Risk Factors*," which are incorporated by reference into this prospectus, and any other documents we file with the SEC that are deemed incorporated by reference into this prospectus and in the "*Risk Factors*" section in the applicable prospectus supplement. See "*Where You Can Find More Information*." Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures or investments we make.

Before any stockholder invests in our securities, such stockholder should be aware that the occurrence of the events described in this section and elsewhere in this prospectus may adversely affect us.

SUMMARY OF THE PROSPECTUS

This summary highlights selected information contained elsewhere or incorporated by reference in this prospectus. The summary may not contain all the information that you should consider before investing in our securities. You should read the entire prospectus carefully, including “Risk Factors” contained in the documents incorporated by reference herein, before making an investment decision.

Company Overview

BigBear.ai Holdings, Inc.’s (“*BigBear.ai*” or the “*Company*”) mission is to help deliver clarity for our clients as they face their most complex decisions. BigBear.ai’s AI-powered decision intelligence solutions are leveraged across our Cyber & Engineering and Analytics business segments and in three primary markets—global supply chains & logistics, autonomous systems and cybersecurity. Our Cyber & Engineering segment provides high-end technology and management consulting services to our customers, focusing on cloud engineering and enterprise IT, cybersecurity, computer network operations and wireless, systems engineering, as well as strategy and program planning. Our Analytics segment provides high-end technology and consulting services to our customers, focusing on big data computing and analytical solutions, including predictive and prescriptive analytics solutions. BigBear.ai’s customers, including federal defense and intelligence agencies, manufacturers, third party logistics providers, retailers, healthcare, and life sciences organizations, rely on BigBear.ai’s solutions to empower leaders to decide on the best possible course of action by creating order from complex data, identifying blind spots, and building predictive outcomes. We are a technology-led solutions organization, providing both software and services to our customers

Solutions and Services

BigBear.ai is a leader in the use of Artificial Intelligence (AI) and Machine Learning (ML) for decision support. We provide our customers with a competitive advantage in a world driven by data that is growing exponentially in terms of volume, variety, and velocity. We believe data—when leveraged effectively—can be a strategic asset for any organization.

Through our supply chain & logistics, autonomous systems and cybersecurity solutions, we help our customers make sense of the world in which they operate, understand how known and previously unforeseen forces impact their operations, and determine which decision and course of action will best achieve their objectives. With all of our solutions, as needed by each customer, we offer specialized consulting services to design, customize, deploy, operate, and support our solutions for federal and commercial customers. Due to the breadth and depth of experience and expertise in our team, many of our customers rely on BigBear.ai resources to supplement their technical and operational staff for long-term engagements as well.



Supply Chains & Logistics Solutions

Our supply chain & logistics solutions include our ObserveData-as-a-Service (“DaaS”) solution, our ProModel discrete event simulator and our Dominate forecasting tool.

Observe DaaS—Data Conflation at Scale. Observe is a near-real time data collection and curation tool designed to collect and process enormous volumes of data from multiple domains, including BigBear.ai data collections, customer proprietary data, and third-party data, to create more holistic insights. Observe captures and distills data to identify relevant information, forming a more coherent and continuously updated view of the situations that matter to our customers anywhere across the globe. Our collections cover many subjects, including facilities, locations, news, events, social media, public communications, internet services and more. For situations that require a more customized solution, Observe collections can be used to enrich the customer’s proprietary data and analytics via modern, robust application programming interfaces (APIs). Our Observe DaaS solution is live in production, with over 25 sources, across more than 100 countries, and 140 million records processed daily.

ProModel Discrete Event Simulator—Course of Action Analysis & Digital Twin. ProModel is a robust discrete-event simulation technology that captures the behavior of complex interdependent processes and enables rapid course-of-action analysis through a “what if” user interface that allows customers to alter various parameters without changing the model directly. The ProModel digital twin modeling platform is used to plan, design and improve new or existing manufacturing, logistics, business processes and other operational systems, and has been implemented in multiple vertical use cases including shipyard planning (Shipyards AI), patient flow optimization in hospitals (Future Flow) and complex portfolio management (Enterprise Portfolio Simulator). Because our Discrete Event Simulator is built and deployed as foundational technology, it can be tailored to many use cases for customers based on specific needs and embedded in existing platforms for an optimal user experience.

Dominate—Macroeconomic & Geopolitical Forecasting. Dominate is a decision support engine that provides customers goal-oriented advice to help them determine the right decision or course of action to best achieve their desired results. Using technology derived from our battlefield expertise, Dominate forecasts future outcomes based on different decision options, assigns a likelihood to each of those outcomes, and allows users to understand potential impacts for each of these decision options. Dominate is based on a resilient analytical architecture specifically designed to make sense of data sets that are periodically dirty, erroneous, or full of gaps. Customers can easily manipulate constraints or modify outcome goals through an interactive interface to quickly reveal the impacts of different decisions. Even in complex environments, Dominate helps customers reveal unexpected insights and develop innovative courses of action.

Cybersecurity Solutions

“BEARCLAW”—AI-Powered, Machine Accelerated Binary Analysis and SpaceCREST—Vulnerability Assessment& Monitoring, Digital Twin. Our cybersecurity offerings include our Binary Extraction Analysis Repository / Customizable Logic Automated Workflow (*BEARCLAW*) engine and the Space Cyber Resiliency through Evaluation and Security Testing (*SpaceCREST*) laboratory environment. Our BEARCLAW engine is a modular framework that incorporates AI/ML to assess vulnerabilities using automation and our data collections to conduct analysis on binaries and better, more quickly inform analysts to help them rapidly identify and/or respond to threats.

SpaceCREST is a laboratory environment designed to study and evaluate vulnerabilities of space assets in a cyber-physical system, develop cyber resiliency, and provide situational awareness and monitoring of those assets. The SpaceCREST initiative leverages Redwire Corporation’s digital engineering ecosystem, including its Hyperion Operational Space Simulation (*HOSS*) Lab and Advanced Configurable Open-system Research Network (*ACORN*) capabilities. Using HOSS and the ACORN platform, BigBear.ai develops tools and technologies to perform vulnerability research on space infrastructure hardware components, identify potential vulnerabilities that could compromise space systems, and provide tools and techniques that demonstrate how to mitigate and protect against the potential vulnerabilities identified. SpaceCREST’s digital twin helps operators rapidly identify when an attack or system failure is occurring. SpaceCREST also performs catastrophic testing without physically destroying the space asset or interrupting operations and our team of specialists then develops cyber security to mitigate the risk of cyber-attacks for our customers.

Our specialists also provide ongoing offensive and defensive cybersecurity analysis services to certain key customers and our mission operators often partner with government teams to contribute to missions for the intelligence community and the Department of Defense (the *DoD*).

Autonomous Systems Solutions

We are well positioned to address the need for scaled cyber-physical systems for complex customers in the federal government, and in the future, the private sector. Our autonomous systems solutions currently in use by the DoD provide geospatial tracking, anomaly detection, computer vision capabilities, and AI at the edge. By conflating millions of data points using AI/ML, our autonomous systems benefit from increased situational awareness, enable predictive forecasts, and can alert both analysts and decision-makers of potential threats. Analysts can combine data sets, including traditional and nontraditional sources, including social media, traditional news media and event data (e.g., GDELT), SIGINT (e.g., X-band, Lband, AIS), SAR, weather and enterprise data sources, to improve situational awareness. Currently, our algorithms run against a myriad of sensors in a maritime environment to support forces who may be operating in disadvantaged or disconnected environments. We believe that this can be leveraged in ground, space, and air combat force contexts in the future.

Background and Business Combination

The Company was originally known as GigCapital4.

On December 7, 2021, we consummated the Business Combination contemplated by the Merger Agreement, whereby (a) Merger Sub merged with and into BigBear.ai Holdings, LLC (the “*First Merger*”), with BigBear.ai Holdings, LLC as the surviving company in the First Merger and as a wholly owned subsidiary of GigCapital4, and, immediately after the First Merger (b) BigBear.ai Holdings, LLC merged with and into GigCapital4 (the “*Second Merger*”), with GigCapital4 as the surviving entity in the Second Merger. In connection with the closing of the Business Combination, on December 7, 2021, GigCapital4 changed its name from GigCapital4, Inc. to BigBear.ai Holdings, Inc.

Pursuant to the terms of the Merger Agreement, at the time of the First Merger (the “*First Effective Time*”), each unit of limited liability company interest of BigBear.ai Holdings, LLC issued and outstanding immediately prior to the First Effective Time (other than units held in BigBear.ai Holdings, LLC’s treasury or owned by GigCapital4, Merger Sub or BigBear.ai Holdings, LLC immediately prior to the First Effective Time) were cancelled and automatically deemed for all purposes to represent the right to receive, in the aggregate (the “*Aggregate Merger Consideration*”), (i) in book entry, a number of shares of common stock, par value \$0.0001 per share, of GigCapital4 (the “*GigCapital4 Common Stock*”) equal to the result of *dividing* (x) the difference of (A) \$1,125,000,000, *minus* (B) \$75,000,000, by (y) 10.00 (rounded up to the nearest whole number of shares). Ultimate, as the sole member of BigBear.ai Holdings, LLC prior to the Business Combination, was paid the Aggregate Merger Consideration (the “*Equity Merger Consideration*”), and (ii) \$75,000,000, in each case without interest and otherwise in accordance with the terms of the Merger Agreement.

At the time of the Second Merger (the “*Second Effective Time*”), each unit of limited liability company interest of BigBear.ai Holdings, LLC issued and outstanding immediately prior to the Second Effective Time was cancelled and ceased to exist without any conversion thereof or payment therefor, and the capital stock of GigCapital4 outstanding immediately prior to the Second Effective Time remained outstanding as the capital stock of GigCapital4, which, collectively with the \$200,000,000 in aggregate principal amount of 6.00% convertible senior notes due 2026 (the “*2026 Convertible Notes*”) issued at the Second Effective Time (as further described below) and the warrants entitling the holders to purchase one share of GigCapital4 Common Stock per warrant (“*GigCapital4 Warrants*”), constituted one hundred percent (100%) of the outstanding equity securities (and securities convertible into equity securities) of BigBear immediately after the Second Effective Time.

Stock Exchange Listing

BigBear’s Common Stock is listed on the NYSE under the symbol “*BBAI*.”

Corporate Information

BigBear is a Delaware corporation. Our principal executive offices are located at BigBear.ai Holdings, Inc., 6811 Benjamin Franklin Drive, Suite 200, Columbia, Maryland 21046, and our telephone number is (410) 312-0885. Our principal website address is <https://bigbear.ai>.

Information contained in, or accessible through, our website is not a part of, and is not incorporated by reference into, this prospectus or the registration statement of which it forms a part.

Emerging Growth Company

The Company is an “emerging growth company,” as defined under the Jumpstart Our Business Startups Act of 2012, as amended (the “*JOBS Act*”). As an emerging growth company, the Company is eligible to take advantage of certain exemptions from various reporting requirements that are applicable to other public companies that are not emerging growth companies. These include, but are not limited to, not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, as amended

[Table of Contents](#)

(the “*Sarbanes-Oxley Act*”), reduced disclosure obligations regarding executive compensation in its periodic reports and proxy statements, and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and the requirement to obtain stockholder approval of any golden parachute payments not previously approved.

In addition, Section 107 of the JOBS Act provides that an emerging growth company can take advantage of an extended transition period provided in Section 7(a)(2)(B) of the Securities Act of 1933, as amended (the “*Securities Act*”) for complying with new or revised accounting standards.

The Company will remain an emerging growth company until the earlier of (i) December 31, 2026 (the last day of the fiscal year following the fifth anniversary of the consummation of the Company’s initial public offering), (ii) the last day of the fiscal year in which the Company has total annual gross revenue of at least \$1.07 billion, (iii) the last day of the fiscal year in which the Company is deemed to be a “large accelerated filer,” as defined in the Securities Exchange Act of 1934, as amended (the “*Exchange Act*”) and (iv) the date on which the Company has issued more than \$1.0 billion in nonconvertible debt during the prior three-year period.

THE OFFERING

Issuer	BigBear.ai Holdings, Inc.
Shares of Common Stock Offered by the Selling Stockholders	Up to 113,250,000 shares.
Outstanding shares of Common Stock	142,888,068 shares (as of April 24, 2023).
Use of proceeds	We will not receive any proceeds from the sale of shares of Common Stock by the Selling Stockholders.
Market for Common Stock	Our Common Stock is currently traded on the NYSE under the symbol “BBAI.”
Risk factors	Any investment in the securities offered hereby is speculative and involves a high degree of risk. You should carefully consider the information set forth under “ <i>Part I, Item 1A-Risk Factors</i> ” in our Annual Report on Form 10-K for the period ended December 31, 2022, and as described or may be described in any subsequent Annual Report on Form 10-K or any Quarterly Report on Form 10-Q under the heading “ <i>Item 1A.Risk Factors,</i> ” as well as in any other documents we file with the SEC that are deemed incorporated by reference into this prospectus and the “ <i>Risk Factors</i> ” section in the applicable prospectus supplement.

RISK FACTORS

Investing in our securities involves a high degree of risk. See “Part I, Item 1A-Risk Factors” in our Annual Report on Form 10-K for the period ended December 31, 2022, as filed with the SEC on March 31, 2023, and as described or may be described in any Quarterly Report on Form 10-Q or subsequent Annual Report on Form 10-K under the heading “Item 1A. Risk Factors,” as well as in any other documents we file with the SEC that are deemed incorporated by reference into this prospectus and the “Risk Factors” section in the applicable prospectus supplement for a discussion of the factors you should carefully consider before deciding to purchase our securities. Before you invest in our securities, you should carefully consider these risks as well as other information we include or incorporate by reference into this prospectus and the applicable prospectus supplement. The risks and uncertainties we have described are not the only ones facing our company. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also affect our business operations. The occurrence of any of these risks might cause you to lose all or part of your investment in the offered securities. The discussion of risks includes or refers to forward-looking statements; you should read the explanation of the qualifications and limitations on such forward-looking statements discussed elsewhere in this prospectus.

USE OF PROCEEDS

All of the Common Stock offered by the Selling Stockholders pursuant to this prospectus will be sold by the Selling Stockholders for their own account. We will not receive any of the proceeds from these sales.

The Selling Stockholders will pay any underwriting fees, discounts, selling commissions, stock transfer taxes and certain legal expenses incurred by such Selling Stockholder in disposing of its shares of Common Stock, and we will bear all other costs, fees and expenses incurred in effecting the registration of the securities covered by this prospectus, including, without limitation, all registration and filing fees, NYSE listing fees and fees and expenses of our counsel and our independent registered public accountants.

SELLING STOCKHOLDERS

This prospectus relates to the resale by the Selling Stockholders from time to time of up to 113,250,000 shares of Common Stock. The Selling Stockholders may from time to time offer and sell any or all of the Common Stock set forth below pursuant to this prospectus and any accompanying prospectus supplement. When we refer to the “Selling Stockholders” in this prospectus, we mean the persons listed in the table below, and the pledgees, donees, transferees, assignees, successors, designees and others who later come to hold any of the Selling Stockholders’ interest in the Common Stock other than through a public sale.

The following table sets forth, as of the date of this prospectus, the names of the Selling Stockholders, the aggregate number of shares of Common Stock, the aggregate number of shares of Common Stock that the Selling Stockholders may offer pursuant to this prospectus and the number of shares of Common Stock beneficially owned by the Selling Stockholders after the sale of the securities offered hereby. We have based percentage ownership on 142,888,068 shares of Common Stock outstanding as of April 24, 2023.

We have determined beneficial ownership in accordance with the rules of the SEC and the information is not necessarily indicative of beneficial ownership for any other purpose. Unless otherwise indicated below, to our knowledge, the persons and entities named in the table have sole voting and sole investment power with respect to all securities that they beneficially own, subject to community property laws where applicable.

We cannot advise you as to whether the Selling Stockholders will in fact sell any or all of such Common Stock. In addition, the Selling Stockholders may sell, transfer or otherwise dispose of, at any time and from time to time, the Common Stock in transactions exempt from the registration requirements of the Securities Act after the date of this prospectus. For purposes of this table, we have assumed that the Selling Stockholders will have sold all of the securities covered by this prospectus upon the completion of the offering.

Selling Stockholder information for each additional Selling Stockholder, if any, will be set forth by prospectus supplement to the extent required prior to the time of any offer or sale of such Selling Stockholder’s shares pursuant to this prospectus. Any prospectus supplement may add, update, substitute, or change the information contained in this prospectus, including the identity of each Selling Stockholder and the number of shares registered on its behalf. A Selling Stockholder may sell or otherwise transfer all, some or none of such shares in this offering. See “*Plan of Distribution.*”

Name of Selling Stockholder	Shares Beneficially Owned Prior to the Offering		Shares Being Offered	Shares Beneficially Owned After the Offering	
	Shares	% ⁽¹⁾		Shares	%
AE BBAI Aggregator, LP ⁽²⁾	8,250,000	5.8%	8,250,000	—	—
BBAI Ultimate Holdings, LLC ⁽²⁾	105,000,000	73.5%	105,000,000	—	—

- (1) We have based percentage ownership on 142,888,068 shares of Common Stock outstanding as of April 24, 2023.
- (2) AE BBAI Aggregator, LP and BBAI Ultimate Holdings, LLC are controlled by AE Industrial Partners Fund II, LP, AE Industrial Partners Fund II-A, LP and AE Industrial Partners Fund II-B, LP (collectively, the “*AE Partners Funds*”). The general partner of the BBAI Ultimate Holdings, LLC is AE Industrial Partners Fund II GP, LP, which in turn is managed by its general partner AeroEquity GP, LLC. AE BBRED GP, LLC is the general partner of AE BBAI Aggregator, LP which the AE Partners Funds hold all interests in. AeroEquity GP, LLC is controlled by its managing members, Michael Greene and David Rowe. Messrs. Greene and Rowe make all voting and investment decisions with respect to the securities held by AE Industrial Partners. Each of the entities and individuals named above disclaims beneficial ownership of the BigBear securities held of record by BBAI Ultimate Holdings, LLC, except to the extent of its pecuniary interest therein. The business address of each of the foregoing entities and persons is 2500 N. Military Trail, Suite 470, Boca Raton, Florida 33431.

PLAN OF DISTRIBUTION

The Selling Stockholders, which, as used herein, includes their permitted transferees, may, from time to time, sell, transfer or otherwise dispose of any or all of their shares of Common Stock on NYSE or any other stock exchange, market or trading facility on which such securities are traded or in private transactions. These dispositions may be at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market price, at varying prices determined at the time of sale or at negotiated prices.

The Selling Stockholders may use any one or more of the following methods when disposing of their shares of our Common Stock:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares as agent, but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- in underwritten transactions;
- short sales;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- broker-dealers may agree with the Selling Stockholders to sell a specified number of such shares at a stipulated price;
- distribution to members, limited partners or stockholders of Selling Stockholders;
- “at the market” or through market makers or into an existing market for the shares;
- a combination of any such methods of sale; and
- any other method permitted pursuant to applicable law.

The Selling Stockholders may, from time to time, pledge or grant a security interest in some or all of the shares of our Common Stock owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell their shares, from time to time, under this prospectus, or under an amendment to this prospectus under Rule 424(b) or other applicable provision of the Securities Act amending the list of Selling Stockholders to include the pledgee, transferee or other successors in interest as Selling Stockholders under this prospectus. The Selling Stockholders also may transfer their securities in other circumstances, in which case the transferees, pledgees or other successors in interest will be the selling beneficial owners for purposes of this prospectus.

In connection with the sale of our Common Stock, the Selling Stockholders may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of our securities in the course of hedging the positions they assume. The Selling Stockholders may also sell their securities short and deliver these securities to close out their short positions, or loan or pledge such securities to broker-dealers that in turn may sell these securities. The Selling Stockholders may also enter into option or other transactions with broker-dealers or other financial institutions or the creation of one or more derivative securities which require the delivery to such broker-dealer or other financial institution of the shares offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The aggregate proceeds to the Selling Stockholders from the sale of our Common Stock offered by them will be the purchase price less discounts or commissions, if any. The Selling Stockholders reserve the right to

Table of Contents

accept and, together with their agents from time to time, to reject, in whole or in part, any proposed purchase of our Common Stock to be made directly or through agents. We will not receive any of the proceeds from any offering by the Selling Stockholders.

The Selling Stockholders also may in the future resell a portion of our Common Stock in open market transactions in reliance upon Rule 144 under the Securities Act, provided that they meet the criteria and conform to the requirements of that rule, or pursuant to other available exemptions from the registration requirements of the Securities Act.

The Selling Stockholders are “underwriters” within the meaning of Section 2(a)(11) of the Securities Act and are subject to the prospectus delivery requirements of the Securities Act. Any underwriters, broker-dealers or agents that participate in the sale of our Common Stock may also be “underwriters” within the meaning of Section 2(11) of the Securities Act. Any discounts, commissions, concessions or profit they earn on any resale of our Common Stock may be underwriting discounts and commissions under the Securities Act. Underwriters and their controlling persons, dealers and agents may be entitled, under agreements entered into with us and the Selling Stockholders, to indemnification against and contribution toward specific civil liabilities, including liabilities under the Securities Act.

To the extent required, our Common Stock to be sold, the respective purchase prices and public offering prices, the names of any agent, dealer or underwriter, and any applicable discounts, commissions, concessions or other compensation with respect to a particular offer will be set forth in an accompanying prospectus supplement or, if appropriate, a post-effective amendment to the prospectus that includes this prospectus.

To facilitate an offering of the securities, certain persons participating in the offering may engage in transactions that stabilize, maintain, or otherwise affect the 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 we sold to them. In these circumstances, these persons would cover the over-allotments or short positions by making purchases in the open market or by exercising their over-allotment option. In addition, these 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 dealers participating in the 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. These transactions may be discontinued at any time.

We have agreed to maintain the effectiveness of this prospectus until all such securities have been sold under this prospectus or Rule 144 under the Securities Act or are no longer outstanding. We are required to pay all fees and expenses incident to the registration of the shares of our Common Stock to be offered and sold pursuant to this prospectus. The Selling Stockholders will bear all commissions and discounts, if any, attributable to their sale of shares of our Common Stock.

The Selling Stockholders may use this prospectus in connection with resales of our Common Stock. This prospectus and any accompanying prospectus supplement will identify the Selling Stockholders, the terms of our Common Stock and any material relationships between us and the Selling Stockholders. The Selling Stockholders are underwriters under the Securities Act in connection with our Common Stock they resell and any profits on the sales may be deemed to be underwriting discounts and commissions under the Securities Act. Unless otherwise set forth in a prospectus supplement, the Selling Stockholders will receive all the net proceeds from the resale of our Common Stock.

A Selling Stockholder that is an entity may elect to make an in-kind distribution of Common Stock to its members, partners or stockholders pursuant to the registration statement of which this prospectus is a part by delivering a prospectus. To the extent that such members, partners or stockholders are not affiliates of ours, such members, partners or stockholders would thereby receive freely tradable Common Stock pursuant to the distribution through a registration statement.

LEGAL MATTERS

The validity of the securities offered hereby will be passed upon for us by Kirkland & Ellis LLP, New York, New York.

EXPERTS

The financial statements incorporated by reference in this prospectus and elsewhere in the registration statement have been so incorporated by reference in reliance of the report of Grant Thornton LLP, independent registered public accountants, upon the authority of said firm as experts in accounting and auditing.