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# Corporate Investors in Top U.S. AI Startups

CSET Data Brief



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## Executive Summary

U.S. artificial intelligence startups are raising billions of dollars, including from corporate investors. While corporate *acquisitions* of AI startups are at an all-time high, there is little systematic analysis of corporate *investment* into these early-stage companies. By analyzing thousands of U.S.-based startups and their investors, we find:

- Corporate investors are a significant player in the U.S. AI startup ecosystem.
- Corporate investors fund top U.S. AI startups more frequently than they fund top startups in other sectors. Top AI startups also tend to have more corporate investors than other startups.
- 71 percent of top U.S. AI startups have one or more corporate investors. Corporate investors make up 16 percent of all such investors.
- Top U.S. AI startups have more corporate investment than leading startups in other industries.
- GV (formerly Google Ventures) is the most active strategic corporate investor in top U.S. AI startups, followed by Intel. Wells Fargo is the most active financial corporate investor in top U.S. AI startups.

## Corporate Investment Context

Venture capital investments into AI have increased dramatically. In 2019, U.S. AI startups raised more than \$20 billion, about three times their 2015 total.<sup>1</sup> High-profile AI researchers have received tens or hundreds of millions of dollars to launch new venture capital firms focused primarily on investing in AI startups.<sup>2</sup> In fact, investment in U.S. AI startups grew from 2018 to 2019, even as the total investment market shrunk.<sup>3</sup>

Some worry that corporate funding and acquisition are smothering the U.S. AI startup ecosystem by imitating or acquiring startups to eliminate competition. Corporate acquisitions of U.S. AI startups are at an all-time high: Larger companies acquired 231 AI startups in 2019, up from 42 in 2014.<sup>4</sup> Critics argue that big tech acquisitions hoard talent and squash potential competitors, weakening the broader AI ecosystem.<sup>5</sup> Others maintain that some founders aim for an acquisition when launching their company,<sup>6</sup> which means corporate acquisitions may ultimately spur innovation.

While corporate acquisitions of U.S. AI startups are well-documented, large corporations can also use venture capital investment to exert influence without an acquisition, in both positive and negative ways. Strategic investors, those investing in the same industry they operate in, gain power over their targets' decisions and access to their proprietary information.<sup>7</sup> In exchange, they offer financial resources, contacts, and industry-specific advice to startup founders.<sup>8</sup> On the other hand, many corporate investors are financially motivated, investing simply for profit, or with multiple goals in mind.<sup>9</sup>

In addition to the possible costs and benefits of strategic corporate funding, corporations are on the whole sophisticated investors with high levels of expertise and access to private information. Analyzing the trends in corporate investment into top U.S. AI startups can provide insight into which startups are viewed as promising and where the field may be headed.

## Findings

To date, there has been little analysis of trends in corporate investments into AI startups. We studied these trends by comparing a group of 177 top U.S. AI startups, as identified by *Forbes* and the CB Insights data service in analyses from 2019 and 2020. We also defined two comparison groups: a group of 151 leading U.S. startups in industries other than AI (“top U.S. non-AI startups”), and a group consisting of all 3,029 U.S. startups we identified as active in AI (“all U.S. AI startups”). The appendix explains how we compiled each group. We defined a corporate investor as an investor that either a) is publicly traded, b) has more than 5 thousand employees or c) is a subsidiary of such an organization.<sup>10</sup>

We find that corporate investors are especially focused on top U.S. AI startups. Corporate investors make up 16 percent of all investors into the top U.S. AI startups. The percentage is almost double that of investors into top U.S. non-AI startups, at 9 percent, or all U.S. AI startups, at 9 percent.<sup>11</sup>

Table 1: 16 Percent of Investors in Top U.S. AI Startups Are Corporate, Almost Twice That of Control Groups<sup>12</sup>

Companies	Total Number of Investors	Number of Corporate Investors	Percentage of Corporate Investors
Top U.S. AI Startups	1,191	196	16%
Top U.S. Non-AI Startups	1,349	121	9%
All U.S. AI Startups	6,910	626	9%

Source: CSET analysis of Crunchbase data. Read as: “Out of 1,191 total investors in top U.S. AI startups, 196 are corporate, or 16 percent.”

In addition to comprising 16 percent of the investor pool, corporate investors have significant reach: 71 percent of top U.S. AI startups have one or more corporate investors, as shown in Table 2. This rate is significantly higher than the percentage of top U.S. non-AI startups with corporate investors, or the percentage of all U.S. AI startups with corporate investors.<sup>13</sup>

Table 2: 71 Percent of Top U.S. AI Startups Have a Corporate Investor<sup>14</sup>

Companies	Total Number of Startups	Number of Startups with a Corporate Investor	Percentage of Startups with a Corporate Investor
Top U.S. AI Startups	177	126	71%
Top U.S. Non-AI Startups	151	80	53%
All U.S. AI Startups	3,029	814	27%

Source: CSET analysis of Crunchbase data. Read as: “Out of 177 top U.S. AI startups, or 72 percent have one or more corporate investors.”

As Table 3 shows, Alphabet's venture capital arm, GV, is by far the most active corporate investor into top AI startups, with 41 total investments into 19 (10.7 percent) of the 177 top U.S. AI startups.<sup>15</sup> GV has also invested in 9.3 percent of the top U.S. non-AI startups, but in only 1.3 percent of all U.S. AI startups. GV is more likely to invest in AI startups than non-AI startups; it is also more likely to invest in top startups regardless of focus area.<sup>16</sup>

Intel Capital is the second most active corporate investor. Unlike GV, it has no investments in top U.S. non-AI startups and a high rate of investments in all U.S. AI startups, suggesting a specific focus on AI. The other big tech companies<sup>17</sup> trail behind: Baidu and Tencent<sup>18</sup> invest in four top U.S. AI startups, Amazon in three,<sup>19</sup> and Microsoft and Alibaba invest in only one. None of these companies other than Google were significantly more likely to invest in AI startups than non-AI startups; however, Intel, Baidu, Tencent and Amazon were more likely to invest in *top* AI startups than startups that were neither top nor AI. Facebook and Apple, which do not have venture capital arms, do not appear in the list.<sup>20</sup> Wells Fargo, Bloomberg, SoftBank, and Goldman Sachs are the most active financial corporate investors.<sup>21</sup>

Table 3: GV Invests in the Greatest Number of Top U.S AI Startups, Followed by Intel Capital<sup>22</sup>

Investor Information			Firms Invested In					
			Top U.S. AI Startups		Top U.S. Non-AI Startups		All U.S. AI-Startups	
Name	Affiliated Corporation	Type <sup>23</sup>	Count	Percent	Count	Percent	Count	Percent
GV	Google	Strategic	19	10.7%	14	9.3%	40	1.3%
Intel Capital	Intel	Strategic	13	7.3%	0	0.0%	57	1.9%
Norwest Venture Partners	Wells Fargo	Financial	8	4.5%	7	4.6%	26	0.9%
Bloomberg Beta	Bloomberg	Financial	7	4.0%	1	0.7%	32	1.1%
SoftBank Vision Fund	SoftBank	Financial	6	3.4%	3	2.0%	8	0.3%
Goldman Sachs	Goldman Sachs	Financial	6	3.4%	3	2.0%	20	0.7%
Comcast Ventures	Comcast	Strategic	5	2.8%	5	3.3%	19	0.6%
Next47	Siemens	Strategic	5	2.8%	1	0.7%	8	0.3%
Dell Technologies Capital	Dell	Strategic	5	2.8%	0	0.0%	10	0.3%
Salesforce Ventures	Salesforce	Strategic	5	2.8%	6	4.0%	27	0.9%
Eight Roads Ventures	Fidelity International	Financial	4	2.3%	2	1.3%	8	0.3%
Baidu Ventures	Baidu	Strategic	4	2.3%	1	0.7%	11	0.4%
Tencent Holdings	Tencent Holdings	Strategic	4	2.3%	0	0.0%	16	0.5%
Nvidia GPU Ventures	NVIDIA	Strategic	4	2.3%	0	0.0%	13	0.4%
SoftBank Ventures Asia	SoftBank	Financial	4	2.3%	0	0.0%	7	0.2%
Qualcomm Ventures	Qualcomm	Strategic	3	1.7%	2	1.3%	10	0.3%
Cisco Investments	Cisco	Strategic	3	1.7%	0	0.0%	5	0.2%
Amazon Alexa Fund	Amazon	Strategic	3	1.7%	1	0.7%	13	0.4%
Lockheed Martin Ventures	Lockheed Martin	Strategic	3	1.7%	0	0.0%	5	0.2%
T. Rowe Price	T. Rowe Price	Financial	3	1.7%	6	4.0%	5	0.2%

Source: CSET analysis of Crunchbase data. Investors ordered by the number of top U.S. AI startups invested in, and then for identical numbers by the number of investments in top U.S. AI startups (not shown); only the top 20 investors are included. There are 177 startups in top U.S. AI startups, 151 in top U.S. non-AI startups, and 3,029 in all U.S. AI startups. Read as: "GV, a subsidiary of Google, and a strategic investor, invests in 10.7 percent of top U.S. AI startups (19 startups), 9.3 percent of top U.S. non-AI startups (14 startups) and 1.3 percent of all U.S. AI startups (40 startups)."

Corporate interest in top U.S. AI startups is concentrated in certain startups. 18 top U.S. AI startups have five or more corporate investors. Of the top U.S. AI startups analyzed, open source machine learning platform H2O.ai had the highest number of corporate investors, including Goldman Sachs, Nvidia, Ping An Global Voyager Fund, and Wells Fargo.

Table 4: H2O.ai Has the Greatest Number of Corporate Investors of Top U.S. AI Startups, Followed by Gauss Surgical, Orbital Insight, and Trifacta

Company	Total Number of Investors	Number of Corporate Investors	Percentage of Corporate Investors
H2O.ai	19	11	58%
Gauss Surgical	21	9	43%
Orbital Insight	21	8	38%
Trifacta	27	8	30%
Matterport	30	7	23%
Metawave	18	7	39%
Syntiant	14	7	50%
Fundbox	25	6	24%
Socure	23	6	26%
Tamr	15	6	40%
TuSimple	15	6	40%
Arterys	17	5	29%
Blaize	10	5	50%

DefinedCrowd	14	5	36%
Pony.ai	22	5	23%
Pymetrics	12	5	42%
SparkCognition	25	5	20%
Synack	16	5	31%
Algorithmia	11	4	36%
Aurora	12	4	33%

Source: CSET analysis of Crunchbase data. Top U.S. AI startups ordered by the number of corporate investors they have; only the top 20 are included. Read as: "H2O.ai has 11 corporate investors, which make up 58 percent of total investors."



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## Appendix: Methodology

- **Identifying Top U.S. AI Startups:** We combined [CB Insights' Top 100 AI Startups of 2019](#), [CB Insights' Top 100 AI Startups of 2020](#), [Forbes' America's Most Promising AI Companies of 2019](#) and [Forbes' America's Most Promising AI Companies of 2020](#). For Forbes, an AI startup needed to show that techniques such as machine learning, natural language processing, or computer vision were core to the business model. For CB Insights, a startup's AI focus was evaluated on factors including patent activity and tech novelty. We restricted our analysis to companies listed on Crunchbase, headquartered in the United States, not publicly traded, with a Crunchbase-reported employee count of 5 thousand and under. This resulted in a list of 177 top U.S. AI startups.
- **Identifying Top U.S. Non-AI Startups:** We combined [LinkedIn's 50 Hottest U.S. Companies of 2019](#), [Forbes' America's Best Startup Employers of 2020](#), and [Angellist's 52 Best Startup Companies To Watch Out for in 2020](#). We restricted our analysis to companies listed on Crunchbase, headquartered in the United States, not publicly traded, with a Crunchbase-reported employee count of 5 thousand and under. This resulted in a list of 151 top U.S. non-AI startups.
- **Identifying All U.S. AI Startups:** We identified all organizations in Crunchbase with the category group tag "Artificial Intelligence." We restricted our analysis to companies listed on Crunchbase, headquartered in the United States, not publicly traded, with a Crunchbase-reported employee count of 5 thousand and under. This resulted in a list of 3,029 U.S. AI startups.
- **Identifying Investors:** Data was extracted from Crunchbase on September 16, 2020. To identify the relevant investors into companies, we matched startups to investors and funding rounds through the company's Crunchbase universally unique identifier (UUID). We restricted relevant investments to Angel, Convertible Note, Corporate Round, Pre-Seed, Private Equity, Seed, Series A, Series B, Series C, Series D, Series E, Series F, Series G, Series H, Series I, Series J, and Series Unknown. We excluded rounds labeled as Debt Financing, Equity Crowdfunding, Grant, Initial Coin Offering, Non-Equity Assistance, Post IPO Debt, Post IPO Equity, Post IPO Secondary, Product Crowdfunding, Secondary Market, and

Undisclosed. Investments date back to 1998, however the vast majority of investments (more than 97 percent) date from 2010 or later, and the majority date from 2017 or later.

- **Identifying Corporate Investors:** We defined a corporate investor as an investor that either a) is publicly traded, b) has more than 5 thousand employees or c) is a subsidiary of such an organization. The information on IPOs, employee count, and parent relationship was extracted from Crunchbase. We checked up to four levels of ownership. Strategic or financial status was determined based on whether parent organization's category was listed as "Finance" in Crunchbase.
- **Significance Testing:** We performed two different types of significance tests. If we considered dependent variables with only two possible outcomes, we used logistic regression. If the dependent variable was a count, we used [Poisson regression](#). To control for the false discovery rate, all test results with the same or closely related dependent variables were adjusted using the [Benjamini-Hochberg procedure](#). Statistical significance testing's accuracy relies on the representativeness of the groups evaluated. We attempted to draw a diverse group of top AI and top non-AI startups from several highly-regarded lists of startups to avoid the biases of any particular list, but cannot be confident that these lists accurately reflect the groups they are intended to represent.

## Endnotes

<sup>1</sup> Numbers are from Zachary Arnold, Ilya Rakhovsky, and Tina Huang, "Tracking AI Investment: Initial Findings from the Private Markets" (Center for Security and Emerging Technology, September 2020), <https://cset.georgetown.edu/wp-content/uploads/CSET-Tracking-AI-Investment.pdf>, although other analysis has found similar numbers, including: Jason D. Rowley, "Venture Funding Into AI and Machine Learning Levels Off as Tech Matures," *Crunchbase News*, March 2, 2018, <https://news.crunchbase.com/news/venture-funding-ai-machine-learning-levels-off-tech-matures/>; Chris O'Brien, "AI Startups Raised \$18.5 Billion in 2019, Setting New Funding Record," *VentureBeat*, January 14, 2020, <https://venturebeat.com/2020/01/14/ai-startups-raised-18-5-billion-in-2019-setting-new-funding-record/>.

<sup>2</sup> For example: Andrew Ng announces \$175 million AI Fund (Blair Hanley Frank, "Andrew Ng Unveils the AI Fund, with \$175 Million to Back New Startups," *VentureBeat*, January 30, 2018, <https://venturebeat.com/2018/01/30/andrew-ng-unveils-the-ai-fund-with-175-million-to-back-new-startups/>); Base10 Partners launches \$137 million AI startup fund (Khari Johnson, "Base10 Partners Launches \$137 Million Early-Stage AI Startup Fund," *VentureBeat*, September 17, 2018, <https://venturebeat.com/2018/09/17/base10-partners-launches-137-million-early-stage-ai-startup-fund/>); Framework Venture Partners launches \$115 million AI startup fund (Kyle Wiggers, "Canadian Venture Capital Firm Framework Venture Partners Launches \$115 Million AI Startup Fund," *VentureBeat*, February 5, 2019, <https://venturebeat.com/2019/02/05/canadian-venture-capital-firm-framework-venture-partners-launches-115-million-ai-startup-fund/>).

<sup>3</sup> O'Brien, "AI Startups Raised \$18.5 Billion."

<sup>4</sup> Dina Bass and Joshua Brustein, "Big Tech Swallows Most of the Hot AI Startups," *Bloomberg*, March 16, 2020, <https://www.bloomberg.com/news/articles/2020-03-16/big-tech-swallows-most-of-the-hot-ai-startups>.

<sup>5</sup> See for example: Walter Frick, "Big Tech's 15-Year Acquisition Spree Had a Hidden Cost," *Quartz*, July 22, 2020, <https://qz.com/1883377/how-big-techs-acquisition-strategies-suppress-entrepreneurship/>; Sai Krishna Kamepalli, Raghuram Rajan, and Luigi Zingales, "Kill Zone" (University of Chicago Stigler Center, November 2019), <https://research.chicagobooth.edu/-/media/research/stigler/pdfs/workingpapers/39killzonenov.pdf>; Jason Del Rey, "6 Reasons Smaller Companies Want to Break Up Big Tech," *Vox*, January 22, 2020, <https://www.vox.com/recode/2020/1/22/21070898/big-tech-antitrust-amazon-apple-google-facebook-house-hearing-congress-break-up>.

<sup>6</sup> Victor Luckerson, "How Google Perfected the Silicon Valley Acquisition," *TIME*, April 15, 2015, <https://time.com/3815612/silicon-valley-acquisition/>.

<sup>7</sup> Amazon reportedly uses pitch meetings to learn about proprietary information, suggesting that in some cases investment itself may not even be necessary. See Dana Mattioli and Cara

Lombardo, "Amazon Met With Startups About Investing, Then Launched Competing Products," *The Wall Street Journal*, July 23, 2020, <https://www.wsj.com/articles/amazon-tech-startup-echo-bezos-alexa-investment-fund-11595520249>.

<sup>8</sup> Patrick Flesner, Michael Wade, and Nikolaus Obwegeser, "Making Corporate Venture Capital Work," *MIT Sloan Management Review*, June 18, 2019, <https://sloanreview.mit.edu/article/making-corporate-venture-capital-work/>.

<sup>9</sup> Some corporate financial investors are motivated both by financial returns and strategic reasons. For example, Goldman Sachs' Principal Strategic Investments team looks for investments to "accelerate the firm's transition to the next evolution of our business," which also generates a profit. See Hugh Son, "There's a Secretive Tech Fund Inside Goldman Sachs Transforming the Bank and Returning 25% a Year," *CNBC*, May 3, 2019, <https://www.cnbc.com/2019/05/03/inside-the-goldman-sachs-tech-fund-that-made-25percent-returns-for-7-years.html>.

<sup>10</sup> We checked up to four levels of ownership in Crunchbase.

<sup>11</sup> These findings were statistically significant. (All findings of statistical significance are at the  $p \leq 0.05$  level unless otherwise specified.) Specifically, our testing showed that a startup's focus on AI, and being a "top" startup, were both statistically significant factors in it having an increased number of corporate investors. Top AI startups also tended to have more organizational investors in general (as opposed to individual investors, such as angels), but this appears not to account for the majority of the effect. For significance testing, startups in all U.S. AI startups but not in top U.S. AI startups were defined as non-top startups.

<sup>12</sup> Significance testing found that investors into top AI startups were more likely to be corporate than investors into top non-AI startups or non-top AI startups.

<sup>13</sup> These findings were statistically significant. One possible explanation for the observed discrepancy could be the difference between enterprise and consumer-facing startups. Further analysis could explore the difference in corporate and non-corporate investments between enterprise and consumer-facing startups.

<sup>14</sup> Significance testing found that both a startup's focus on AI and being a "top" startup were factors in whether it had a corporate investor, and the number of corporate investors.

<sup>15</sup> Investors can, and often do, invest in the same company multiple times.

<sup>16</sup> These findings were statistically significant.

<sup>17</sup> Defined here as Google, Amazon, Facebook, Apple, Microsoft, Baidu, Alibaba and Tencent.

<sup>18</sup> For more on Chinese investment into top U.S. AI startups, see corresponding research on Foreign Investors in Top U.S. AI Startups.

<sup>19</sup> Including investments made through the Amazon and the Alexa Fund.

<sup>20</sup> Apple does not have a venture capital arm: Caitlin Huston, "Why Apple Doesn't Have a Venture-Capital Arm," *MarketWatch*, June 18, 2016, <https://www.marketwatch.com/story/why-apple-doesnt-have-a-venture-capital-arm-2016-06-15>. Facebook is launching a venture capital arm: Ina Fried and Kia Kokalitcheva, "Scoop: Facebook Establishing a Venture Arm to Invest in Startups," *Axios*, June 11, 2020, <https://www.axios.com/facebook-establishing-a-venture-arm-to-invest-in-startups-91d9ee71-2282-4032-8f31-45b861a6ba9c.html>.

<sup>21</sup> Further analysis of corporate investors could focus on the difference in deal phases prioritized between corporate and non-corporate investors. This analysis could shed insight into whether investors aimed to learn about technology early, by investing in early-stage companies, or were looking for indicators of financial success in later-stage companies.

<sup>22</sup> Significance testing found that GV is more likely to invest in a top startup than a non-top startup, an AI startup than a non-AI startup, and a top AI startup than other startups. Baidu, Intel, and Amazon are more likely to invest in a top startup than a non-top startup, and a top AI startup than other startups, but are no more likely to invest in an AI startup than a non-AI startup. Tencent and Alibaba are more likely to invest in a top AI startup than other startups, but are not more likely to invest in a top startup than a non-top startup, or an AI startup than a non-AI startup. Microsoft is no more likely to invest in a top startup than a non-top startup, an AI startup than a non-AI startup, or a top AI startup than other startups.

<sup>23</sup> Further analysis could explore the difference in investment behaviors between corporate financial investors and corporate strategic investors, including scope of investment, and startups invested in.