

# Factiva

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## THE WALL STREET JOURNAL.

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'The Thinking Machine' Review: From Denny's to Dominance; Nvidia's chief executive is not an easy boss, but he recognized that the company's chips could power innovations in artificial intelligence.

1073 words

7 April 2025

02:16 PM

The Wall Street Journal Online

WSJO

English

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Thanks to the arrival of large language models, Nvidia has become the darling of the stock market. If you purchased one share a decade ago and held it until today, your investment is worth roughly 200 times what you paid.

An American success story? For some investors, absolutely. On the other hand, according to Yahoo Finance, if you had purchased a share at the start of 2002, betting that the dot-com bust was over, your holding would have been worth only two-thirds as much a dozen years later—and even less after adjusting for inflation. While the compound return has been breathtaking since its 1999 initial public offering, Nvidia has been an investor's nightmare for years at a time.

Every company has its ups and downs, but such lengthy stretches of poor returns might lead one to think there were a few management mistakes along the way. One virtue of Stephen Witt's "The Thinking Machine" is that it is not entirely admiring of Jensen Huang, Nvidia's first and only chief executive.

Mr. Witt, a business-and-technology journalist, appropriately credits Mr. Huang for his abrupt decision in 2013 to transform Nvidia from a designer of graphics chips for videogames into a pioneer in semiconductors that can process billions of computations for artificial intelligence. But as "The Thinking Machine" makes clear, Mr. Huang may not be the best exemplar for aspiring CEOs.

Mr. Huang's biography, at this point, is well known. Born in Taiwan in 1963 and raised partly in Thailand, he came to the United States around the age of 10. As a result of a relative's misunderstanding he landed at an elementary school in tiny Oneida, Ky. When his father finally found work in Oregon, young Jensen moved there, attending public school, excelling in table tennis and choosing Oregon State University rather than a more prestigious and costly institution.

He took a job sketching semiconductor designs on paper for Advanced Micro Devices. Two years later, in 1985, he joined LSI Logic to create software for chip designers, and rose to head a division with \$250 million of revenue, even as he was taking night classes to earn a master's degree in electrical engineering from Stanford.

Perhaps intensity is the norm in Silicon Valley, but Mr. Huang comes across as a brilliant grind. He and his wife, Lori, also an electrical engineer, "worked constantly, traveled rarely, and barely socialized outside the semiconductor industry," Mr. Witt reports. As a young manager, he was known for his sharp criticism of others, often to the point of insult: "He didn't have much patience for people who disagreed with him."

Sun Microsystems was an LSI customer, and Mr. Huang became friendly with two Sun chip designers, Chris Malachowsky and Curtis Priem. At a now-famous 1993 meeting at a Denny's restaurant in San Jose, Calif., the three decided to start a company to design chips for videogame consoles. Venture capitalists provided funding. Two bedrooms in Mr. Priem's condo served as the initial office.

Its first chip, released in 1995, was a dud. As Mr. Huang confesses, "every single decision we made was wrong." Most of the staff was laid off. Only in 1997 did Nvidia release a profitable product, just in time to avert a financial crisis. "Our company is thirty days from going out of business" became Mr. Huang's mantra.

Other bet-the-company decisions followed. Some paid off, others did not. GeForce, a semiconductor launched in 1999 for gamers who wanted to speed up their computers, was an instant hit, but a revised version, introduced in 2003, failed badly. Around the same time, Mr. Huang directed Nvidia to develop an ill-fated communications chip. An ambitious product repurposing videogame technology for scientific users proved to be a fiasco when it was introduced in 2006.

How much responsibility Mr. Huang bears for such disasters is not clear from these pages. Mr. Witt does not blame Mr. Huang for a 2002 Securities and Exchange Commission investigation that forced Nvidia to restate three years of earnings and led to the ouster of the company's chief financial officer. One wonders whether these problems had something to do with Mr. Huang's disdain for formal organization, leaving him with dozens of direct reports. In Mr. Witt's telling, Mr. Huang is prone to blame others for failures, abusively dressing down employees in public. Once he became CEO, "he regularly began to blow his stack," Mr. Witt writes.

In 2013 Mr. Huang met with an Nvidia engineer named Bryan Catanzaro, whose research on neural networks had put him in danger of a "Requires Improvement" rating. Mr. Catanzaro described how AI was advancing quickly. After intensive study, Mr. Huang became a convert. He declared Mr. Catanzaro's work to be the single most important project in the company's history, offering Nvidia a once-in-a-lifetime opportunity. It proved to be so, helping make Nvidia one of the most valuable companies on the planet.

Mr. Witt is adept at explaining the hardware and software behind AI. Lay readers mystified by parallel processing and large language models will find "The Thinking Machine" worth reading. As a history, however, the book is incomplete. Mr. Witt draws extensively on interviews with current and former employees, who seem to both worship and to fear Mr. Huang, but the author doesn't appear to have had access to company archives or sensitive documents. This may reflect the proclivities of Mr. Huang, who is quoted in another recently published book, "The Nvidia Way," as saying, "I don't love talking about our past."

Mr. Huang also does not like talking about the potential risks of AI, currently a matter of extensive public discussion. When Mr. Witt raised the subject in a final interview, Mr. Huang's "anger seemed uncontained, omnidirectional, and wildly inappropriate." When Mr. Witt asked other Nvidia executives about the topic, the author laments, "the executives were more afraid of Jensen yelling at them than they were of wiping out the human race."

Mr. Levinson is the author of "The Box: How the Shipping Container Made the World Smaller and the World Economy Bigger" and other books.

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