

Statement of Purpose

From a young age, I was intrigued by the gap between textbook lessons and everyday life—particularly in linear algebra. Some of the most elegant ideas in math and science were presented in ways that felt detached from real-world applications. This realization lingered until a pivotal college semester when I studied Bach’s modulations in music theory alongside matrix transformations in linear algebra. I was struck by the harmony between the two: shifting musical keys mirrored how matrices transform vectors. This unexpected connection illuminated the beauty of abstract concepts when grounded in real-world applications and fueled my mission to create tools that make learning intuitive, engaging, and accessible.

This mission led me to Tableau, whose focus on helping people “see and understand data” resonated deeply with me. At Tableau, I contributed to developing intuitive data visualizations that empowered non-experts to unlock insights hidden in massive datasets. This experience sparked my exploration into creating interactive teaching tools, leading me to develop mini-lessons using D3 and SVG. Presenting these experiments at conferences and as a guest lecturer at Georgia Tech helped me understand both the power of visual storytelling and the need for sound pedagogical frameworks.

Building on these insights, I created [Patternize.io](https://patternize.io), an open-source project illustrating algorithms through real-world analogies—such as demonstrating how dynamic programming can optimize trip planning. The project gained widespread traction, earning hundreds of stars on GitHub and reaching thousands of learners worldwide. When I received a heartfelt message from a learner who said, “I finally understand dynamic programming for the first time,” it was a profound moment. It reinforced my passion for empowering individuals to discover the beauty and utility in what once seemed incomprehensible.

My subsequent roles accelerated this focus on bridging technology and learning. At Airbnb, I led the development of Nova Guide, a tool that leveraged data from past customer tickets to deliver personalized support and training for customer service agents. This project demonstrated that providing the ‘right hint’ at the ‘right moment’ empowers individuals to solve problems independently. As Head of Product at Presence, I honed my venture-building skills by orchestrating AI-driven experiences for large-scale user bases. I led a team of 20 engineers to develop AI Fantasy, a flagship project that integrated AI-driven narratives into immersive environments. Securing \$5 million in funding and achieving significant commercial success, the project reinforced a key principle: cutting-edge technology is most effective when it directly meets user needs—a lesson central to effective learning design.

Despite these successes, I realized I needed a deeper understanding of how people think, learn, and retain knowledge. While my undergraduate studies in computer science and industry experience allowed me to develop interactive learning platforms, I lacked the theoretical grounding in cognitive science, instructional design, and assessment methodologies. Through

Stanford's Master's in Learning Design & Technology (LDT) program, I hope to fill this gap and build a more robust foundation for creating effective learning experiences.

Stanford's LDT program uniquely combines education, design, and technology, aligning perfectly with my aspirations. I have closely followed several research projects at GSE. Professor Victor R. Lee's work on AI literacy in STEM education inspires me to explore the transformative potential of AI-driven learning tools. Likewise, Professor Nick Haber's innovations with AR glasses for children with autism demonstrate how technology can meet diverse learning needs—a principle I am eager to integrate into my own tools.

I am also drawn to the program's diverse cohort and the opportunity to collaborate with peers from varied educational and professional backgrounds. While others may contribute expertise in learning and design, as a full-stack engineer, I can complement these efforts on the technology front by rapidly prototyping ideas for classmates. Additionally, having experienced both private and public schooling in Canada and China, I also bring a transnational perspective to designing inclusive and globally resonant learning solutions.

In the LDT program, I aim to deeply engage with methodologies that underpin effective learning design, building a strong theoretical foundation to complement my work. Similar to the initiative of Patternize.io, I aspire to create next-generation STEM learning platforms where abstract concepts become intuitive through hands-on experimentation and real-time feedback. For instance, students could explore linear transformations by manipulating virtual objects in real time, enhancing their understanding of matrix operations. These tools would also allow learners to see how linear algebra connects to their own domains of interest, whether it's finance, music composition, or machine learning. Advances in AI-generated content (AIGC) and interactive technologies now enable scalable, accessible, and personalized learning experiences, creating exciting opportunities for transformative educational tools.

In the long term, I aim to combine my industry expertise, the knowledge gained from the esteemed professors, and Stanford's vibrant startup ecosystem to build ventures that scale impactful learning solutions for a broader audience. As a global leader in technology with unparalleled ties to Silicon Valley, Stanford offers hands-on opportunities and industry connections that uniquely position me to turn innovative ideas into meaningful solutions.

I look forward to immersing myself in this transformative journey. I am eager to collaborate with the Stanford LDT community to create innovative learning experiences that empower and inspire students worldwide.