Application Essay
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Talking with Siri reveals two things: Artificially Intelligent (AI) user interfaces can be effective at personalization, but they lack personality. I see storytelling as the missing ingredient. For my doctoral research, I am interested in investigating applications of storytelling in Human-Computer Interaction (HCI). I intend to focus on how AI assistants, robots, mobile interfaces, and smart devices might leverage compelling narratives to solve issues in education, sustainability, wellness, social justice, and accessibility. With a background in both HCI and AI research, as well as industry experience in software engineering and user research, I am perfectly positioned to pursue this intersection of fields through Dartmouth's Ph.D. Innovation Program.

I am fascinated by this opportunity because I am a storyteller. Leaning into that identity has helped me to succeed in my personal life, my teaching, and my academic pursuits. As an Armenian-American child of professional artists, I learned the histories of different artistic mediums, how to communicate complex ideas through narratives, and the significance of a memorable story. Decomposing problems into narratives has helped me navigate challenges in every discipline I enter. For example, in high school, I won Third Place at Intel ISEF for demonstrating how a plucked guitar string could approximate the Vlasov–Maxwell equations in plasma under certain boundary conditions. An infatuation with the creative expressiveness of computer programming is what led me to declare CS when I arrived at Stanford. My experiences abroad in college, through archaeology research in Peru; a study abroad in Berlin, focused on Soviet and Nazi propaganda; and anthropology work in the Amazon Rainforest Basin, where I helped preserve the stories of disappearing Huaorani tribes; expanded my understanding of the role that storytelling has played in different cultures. Drawing on these experiences, I began explicitly focusing on storytelling techniques in HCI research and education.

I first explored applications of storytelling in HCI research as a Masters student. Under Dr. Elizabeth Murnane and Dr. James Landay, I worked on a project in the Stanford Volkswagen Automotive Innovation Lab that investigated how intelligent in-car agents might engage with drivers and passengers. Our goal was to re-envision the weekly work commute as something enjoyable, interactive, and creative. We prototyped audio based, family-centered educational games that connected parents to their children through a playful means.

After Stanford, I joined the startup Lark Health. What drew me to Lark was our mission of a chat-based AI nurse that uses narrative content to engage patients with chronic conditions in a wellness and weight loss journey. Like many other weight loss apps, Lark tracks health and diet through phone sensors, connected smart devices, and user input. However, unlike our competitors, Lark goes beyond counting calories or steps; we aim to be a storyteller with a personality: a cross between a coach and a teacher. That north star, I believe, explains our recent success. Since I joined, I have played a crucial part in designing and building out our product. For a long time, I was one of only two mobile engineers. I helped us navigate difficult product decisions through user research, ultimately gaining valuable insights by driving across Oregon and visiting a sampling of our rural users in their homes. Through countless hours of work, my engineering and user research skills have grown immensely. I am proud of my team and how our

product now helps millions of Americans battle diabetes, hypertension, and depression. In recognition of the amazing work Lark is doing, we just raised a further $70M in funding this summer.

I am passionate about improving access to quality education. From my own teaching, I recognize the opportunity for HCI research to make learning more engaging and creative. In 2019, I spent a month in the Middle East teaching courses on AI topics like search algorithms, neural networks, and style transfer. My course married art, game playing, and math/CS theory. In designing my own content, I drew on nine quarters of past experience as a Stanford Teaching Assistant. When the pandemic hit in 2020, I volunteered to help TA for Code in Place, an "open to anyone" introduction to CS course at Stanford. This strong foundation has focused my desire to pursue AI + HCI research on topics in education.

I applied myself to this problem in August by creating a virtual course for Armenian high-school students that explored using software engineering for immersive storytelling. I based my workshop on Stanford's Smart Primer project, which aims to be a "tablet-based intelligent tutoring system for kids that leverages compelling narratives, intelligent tutoring chatbots, real-world activities, and a child's physical and educational context." My students built interactive chatbots, applying skills we covered related to storytelling theory, AI, and software engineering. What started as a fun educational opportunity for students during a pandemic, and a personal academic interest for me, developed into something more significant when war erupted between Armenia and Azerbaijan. Our class became a safe space during a period of national suffering as violence spilled into my students' lives. My kids turned to building immersive chatbots, mostly about family and friends, to process and share recent traumatic experiences. For me, engaging with those bots was a harrowing and humbling reversal of the student-teacher relationship. This incredibly disturbing turn of events has reinforced my belief that storytelling can imbue an AI interface with compelling human elements.

Dartmouth's Ph.D. Innovation Program uniquely fits my specific interests and would be the ideal way for me to continue pursuing my passions. In particular, I am excited about the opportunity to continue working with and learning from Dr. Elizabeth Murnane. In the long term, I have two career objectives. I hope to pursue entrepreneurship and a professorship. 2020 has been a reminder to me of the growing threats that our society faces; future generations will need to combat a new wave of challenges stemming from climate change, disinformation, and inequality. I want to spend my career focused on tackling important issues like these. With the support of the Innovation Program, I see storytelling based AI technology as a space where I can make a significant impact.