

Abraham Mitchell

GRSD 51103

November 17, 2024

I was born in Jackson, Tennessee on September 4th, 2001, but moved to Camden, Arkansas in the third grade after my father died in a car accident. The economy of Camden is driven by the many weapons plants located just East of the town. My mom was one of many people who worked in those plants assembling explosive devices.

My mom is an incredibly strong woman. Despite the loss of my father, she never slowed her efforts to provide for my brother and me, who were unruly, to say the least. Her goal was for her sons to “never go without” and she did everything she could to make that a reality, even sacrificing her own well-being to take extra hours and weekend shifts so that we could have better clothes, new toys, and all the other things little kids want. My mom taught me what it means to work hard for the ones you love and for the goals you wish to achieve, and her sacrifices have given me an unmatched example of work ethic and dedication.

The only respite my mom had was when we stayed at my grandmother’s house. Because of the long hours mom worked, we spent a lot of time there, especially over the summers. I credit my grandmother for teaching me how to deal with conflicts and handle stress. After my father died, I was unsurprisingly a temperamental child. She was an avid pianist, used the piano as a way to calm me down with songs, and taught me how to play so that I could have a creative outlet when I was stressed or upset. She taught me to be empathetic towards others because just as I was unruly after my father’s death, other people might be rude, mean, or emotional because of circumstances that I don’t understand. She would often take me with her when she

volunteered at a hospital, something I hated doing when I was younger. As I got a little older, I eventually began to look forward to going with her because I enjoyed spending time with her and seeing her happy. I consider myself now to be slow to anger and I enjoy helping people, both attributes I contribute wholly to what my grandmother taught me.

My prior intellectual journey involves getting my degree in Computer Engineering at the University of Arkansas. I had a standard degree progression for an engineering student. I graduated in four years thanks to some concurrent credits I took in high school, eliminating several general electives and allowing me to focus on degree-specific courses without having a lot of credit hours per semester. I did a summer research program following my sophomore year doing robotic task planning. This played a big role in my decision to continue my education now. I also did research projects involving the integration of virtual reality(VR) technologies and education later in my undergraduate career. I found that immersive VR experiences could transform the way students learn by providing them with interactive, engaging environments that traditional methods cannot replicate. However, implementing VR in education is not just a technical challenge; it requires understanding pedagogical strategies and addressing logistical issues such as affordability and accessibility. Furthermore, classrooms in the U.S., in my experience, are slow to adopt change, and this can lead to stunted intellectual growth in children because they do not have the level of stimulation needed to expand their knowledge. I believe the struggle to modernize educational tools is an interdisciplinary issue that requires input from engineers, educators, and policymakers to make a lasting impact.

Although I am not majoring in interdisciplinary studies, my previous research experiences guided me toward the idea that interdisciplinarity is crucial to answering some of the complex questions researchers want to solve, even in fields that may seem very focused, such as

robotics. Once I began integrating VR technology into education, I truly understood the magnitude of the importance of interdisciplinary studies. As a Computer Engineering student, I do not have the tools necessary to find or develop the technologies to assist children on my own. Many other disciplines will need to work together to find solutions for children of different ages and educational backgrounds. I decided to enroll in this class to understand the frameworks that make interdisciplinary work successful, such as effective communication and collaborative methodologies. Although my current research does not involve education, interdisciplinarity is still needed as developing machine learning accelerators requires input from experts in machine learning and artificial intelligence algorithms as well as experts in computer architectures and integrated circuit design. Furthermore, I strongly believe that my future work will eventually circle back to education, where interdisciplinary skills will be even more important.

Throughout this semester, my understanding of interdisciplinary studies has deepened significantly. Initially, I saw interdisciplinarity as merely an advantageous approach to complex problems. However, I now realize that it is essential for meaningful innovation. By engaging with diverse perspectives, I've learned to appreciate how different disciplines can inform and enhance one another, even in highly specialized fields like machine learning accelerator design. This realization has transformed how I approach my current research, encouraging me to seek out collaborations and integrate broader insights. My work now involves frequent discussions with experts outside of my immediate field to find better solutions. My journey in this program has also reaffirmed my belief that interdisciplinary methods are not just useful but vital, especially as I envision a future where my work might return to addressing challenges in education. This semester has empowered me to think more holistically, bridging the gaps between engineering, social impact, and practical applications.