

Mark Ellis

Software Engineer

Lakeland, FL - (239) 284-2358 - markde717@gmail.com - mark-d-ellis.com

Skills

C#, Python, C/C++, Unity 3D, Unreal Engine 5, Git, GitHub, Doxygen, Figma, Linux, Blender 3D, Haptics, Research, Simulations, Virtual Reality, Prototyping, gRPC, Visual Studio, HTML, CSS, JS

Experience

Research Scientist / Florida Polytechnic University

February 2023 - PRESENT, Lakeland, FL

- Worked jointly with a team of 5 engineers and surgeons to create metrics for user performance and evaluation as well as receive feedback to improve software and hardware interfaces
- Utilized C# and Unity 3D to develop 5 complex fully simulated environments for open surgery training with haptic feedback hardware and automatic user evaluation
- Rapidly prototyped innovative solutions to obscure software problems repeatedly delivering prototyped solutions weekly and completed simulations within 4 months
- Developed Python scripts to analyze metric data received from user studies creating tables and graphs for basic data analysis and determination of data validity
- Co-authored 4 research papers regarding virtual reality COSATS surgical simulations, researching related projects, created detailed methodology of simulated systems, and performed analysis of results

Software Engineer / Avra Medical Robotics

January 2022 - September 2022, Orlando, FL

- Co-architected patent-pending medical robot system by translating clinical/regulatory requirements into a functional prototype with IP valued at approximately \$1M
- Designed treatment plan software from concept to prototype, consisting of 8k lines of code written in C#, Python, and Unity, meeting deadlines 2 months before expected
- Optimized algorithms, increasing performance by more than 100% for 2D to 3D conversion processes and 3D scan processing, reducing application bottlenecks
- Collaborated with a cross-disciplinary team of 3 engineers to establish communication for controlling and monitoring the robotic system using gRPC
- Demonstrated prototype to and gained the interest of major investors including Dr. Frederic Moll (Intuitive Surgical Founder), Estée Lauder, and Miraki Innovation (VC Firm) to assist executives in raising funds

Research Assistant / Florida Polytechnic University

May 2020 - April 2021, Lakeland, FL

- Coordinated a 4-person team to prepare an environment in Unreal Engine and connect a simulated vehicle designed in Simulink and Python to the environment
- Designed and implemented a simulated environment to test the ability of provided AV algorithms in a safe and repeatable method
- Refined a provided Unreal Engine environment increasing performance by 200% allowing the simulation to be more accurate and effectively analyzed

Education

Florida Polytechnic University / Computer Science

August 2018 - May 2022, Lakeland, FL

Summa Cum Laude (GPA: 3.98)

Presidents List: 2018-2022