Amr El Mantawi

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Computer Engineering junior in Penn State's Schreyer Honors Program with a minor in physics, skilled in C/C++, Python, and Verilog. Actively utilizing graph neural networks at APUS Lab and proficient in operating systems programming, machine learning, FPGA design, and embedded programming.

Education

Penn State University — University Park, PA
BS, Computer Engineering. GPA: 3.75 — Aug 2021 - May 2025
Minor, Physics
Schreyer's Honors Program

Work Experience

Research Assistant, APUS Lab — Aug 2023 - Present
- Applied graph neural networks in python to model and optimize physics systems within VTOL aircrafts in collaboration with the "Geometric Deep Learning for Dynamics on Graphs" group.

Computer Engineering Learning Assistant, Penn State — Aug 2023 - Present
- Assisted students in understanding Verilog, CPU architecture and FPGA design concepts.

Engineering Intern, Penn Dot — May 2023 - July 2023
- Collected and analyzed data for PennDOT's Roadway Management System.

Projects

FPS Multiplayer Game — Jan 2022 - Present
- Developed a multiplayer game using Unreal Engine and C++, applying knowledge of data structures, algorithms, networking, and object-oriented programming.
- Implemented peer-to-peer networking via Epic Online Services for seamless player connections and enhanced multiplayer experiences.

Retro Gaming Console — Aug 2022 - Present
- Designed and built a mobile arcade using a Raspberry Pi and Python, applying knowledge of electronics, embedded programming, and hardware design principles.
- Implemented an I2S signal to output sound from the Raspberry Pi, enabling the arcade to produce high-quality audio output.

MDADM Memory Manager — Jan 2023 - May 2023
- Created a memory manager program in C, applying knowledge of memory handling, networking, and systems programming.
- Implemented networking support, allowing users to connect to a remote JBOD server and send and receive packets.
- Integrated a cache system within the memory manager, leading to substantial speed improvements by reducing memory access latency.

Activities & Awards

- Nittany Motorsport, Embedded Programmer — 2023-Present
- IEEE, Member — 2021-Present
- ACM, Member — 2021-Present
- Dean's List, Recipient — 2021-Present
- Coding Club, Vice President — 2021-2023

Skills & Interests

- **Technical:** C, C++, C#, Assembly, Verilog, Java, Arduino, Python, Linux, SQL, Shell Scripting, TensorFlow, Git, Object-Oriented Programming, Debugging, Machine Learning, FPGA design, Operating Systems Programming
- **Soft Skills:** Teamwork, Adaptability, Critical thinking, Leadership
- **Tools:** GitHub, Visual Studio, Vivado, Unreal Engine, Unity, Multisim, MaxPlus II, Microsoft Office
- **Language:** English, Arabic
- **Interests:** Drawing, Gaming, Baking, Building Circuits, Coding