Anthony Marinov

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EDUCATION

Master of Science in Structural Engineering (Computer Science Focus) | University of California, San Diego | **GPA: 4.0/4.0** June 2026
Bachelor of Science in Structural Engineering | University of California, San Diego | **GPA: 3.88/4.00** June 2025

SKILLS

- **Languages:** Java | Python | C | C++ | TypeScript | JavaScript | SQL | Bash | HTML/CSS | MATLAB
- **Technologies:** CUDA | ROCm | HIP | OpenMP | Docker | Git | MySQL | Transformers | Amazon Web Services (AWS) | Linux
- **Frameworks & Libraries:** Spring | Django | Next.js | React.js | Node.js | Jest | Jenkins | JUnit | Tensorflow | PyTorch
- **Programs:** Abaqus | Solidworks | SAP 2000 | RISA | LabVIEW | AutoCAD | Revit | Excel
- **Hardware:** Sensors | Data Acquisition | Signal Processing | Spectral Analysis | Structural Health Monitoring
- **Engineering:** Finite Element Analysis (FEA) | Optimization | Product Design | Composites | Steel | Concrete | Timber

EXPERIENCE

Amazon | Software Development Engineer Intern June 2025 - Sept. 2025

- Architected and launched a retry mechanism for transactional notifications in the new customer experience (CX) architecture, resulting in 550,000 additional new CX notifications being sent per day worldwide
- Streamlined exception handling across multiple interconnected services, bringing the logic ownership to a single service
- Developed a system for monitoring notification rendering failures in the new CX architecture, giving away teams the ability to independently monitor and set alarms on rendering failures for the notification templates they own

San Diego Supercomputer Center | Graduate Student Researcher Oct 2025 - Current

- Develop nonlinear structural analysis and optimization techniques on exascale-capable high-performance computing (HPC) systems to advance computational mechanics methods for the design of new impact-resistant metamaterials
- Productionize and refactor C++, Python, and Fortran development code for deployment on AMD MI300A–based HPE supercomputers, with emphasis on GPU/APU acceleration and communication cost optimization
- Collaborate with domain experts to research and implement best-in-class technologies, benchmark and optimize inter-process communication (IPC), and advise scientists on scalable code design for next-generation simulation packages

MiTek | Research and Development Engineer Intern June 2024 - Sept. 2024

- Led the creation of an AI generative design program using Python, XGBoost, and TensorFlow, alongside a cost and time estimation tool in Excel, to optimize lateral system design for wood light-frame construction
- Collaborated with cross-functional teams to establish a new design philosophy for MiTek's lateral solutions, reducing construction time by up to 20% with minimal cost impact through data-driven insights from the program
- Created a comprehensive documentation package for internal distribution and delivered a tutorial presentation to global team leadership, detailing the program's features, usage, and potential for further development

PROJECTS

Custom Generative Pretrained Transformer (GPT) | *(Python, PyTorch)* anthonymarinov/custom-gpt

- Developed a custom Transformer model in PyTorch inspired by GPT-2 and the *Attention is All You Need* paper to generate Shakespearean-style text
- Implemented multi-head self-attention, positional encoding, and layer normalization with optimizations (residual connections, dropout, manual attention) to improve performance and reduce overfitting

Soil-Water Retention ML Model | *(Python, Keras/Tensorflow, Sklearn, Matplotlib)* anthonymarinov/soil-water-retention

- Developed non-isothermal machine learning models to predict soil saturation based on matric suction and user-specified temperatures, extending capabilities beyond traditional isothermal models
- Optimized model performance using cross-validation and custom loss functions, ensuring accurate predictions across varying geotechnical conditions