Anthony Marinov

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EXPERIENCE

MiTek | *R&D Engineer Intern* *June 2024 - Sept 2024*

- Developed an AI generative design program using Python, XGBoost, and Tensorflow along with a cost/time estimation tool in Excel for optimized lateral system design in wood light-frame construction.
- Led the creation of a new, non-traditional design philosophy for MiTek's lateral solutions capable of decreasing lateral system construction time by up to 20% with negligible cost increase.
- Assembled a full file package with detailed documentation for internal company distribution and for further testing, development, and software integration.

Alpha MM Inc. | *Software Engineer* *June 2023 - Sept 2023*

- Created a machine learning pricing and expense model using Tensorflow in Python for more efficient client quoting and accurate project expense estimates, increasing project margins by 7% on average.
- Developed a Python program to handle project scheduling, match sub-contractors to projects, and generate client invoices and necessary project agreement documents.

EDUCATION

BS, Structural Engineering | University of California, San Diego | **GPA: 3.857 / 4.000** *June 2025*

MS, Structural Engineering/Computer Science | University of California, San Diego | **GPA: *In Progress*** *June 2026*

SKILLS

Computer Science

Languages: Java, Python, C, SQL, MATLAB, HTML/CSS, VBA

Tech: Machine Learning/AI, Data Structures, Object Oriented Programming, Git

Libraries: Keras/Tensorflow, XGBoost, PyTorch, Sklearn, Pandas, Matplotlib, Seaborn, Xlwings, SMOTEENN

Engineering

Design/Analysis: Finite Element Analysis, Product Design, Composites, Steel, Reinforced Concrete, Timber

Tech: Sensors & Data Acquisition, Signal Processing & Spectral Analysis, Structural Health Monitoring

Programs: Solidworks, LabVIEW, SAP 2000, RISA, Abaqus, AutoCAD, Revit, MS Office

PROJECTS

Generative Pretrained Transformer (GPT) | (Python, PyTorch) github-link

- Developed a custom implementation of the Transformer architecture, drawing on the GPT-2 framework and the "Attention is All You Need" paper, to create a text generation model that emulates Shakespeare.
- Constructed the model from scratch using PyTorch, manually implementing multi-head self-attention, positional encoding, and layer normalization to support long-range context, as well as residual connections and dropout to improve model training and reduce overfitting.

Soil-Water Retention ML Model | (Python, Keras/Tensorflow, Sklearn, Matplotlib) class project, can't share

- Created a non-isothermal soil-water retention model in a geotechnical engineering context using multiple machine learning approaches (ridge regression, KNN, RNN w/ custom loss functions).
- Optimized the models using cross validation to predict soil saturation given matric suction under any user specified temperature, unlike traditional isothermal models.

Design-Build Competition | (Solidworks, AutoCAD) github-link

- Designed and built an extending arm mechanism that delivers a ball to suspended scoring platforms, utilizing 3D printing, laser cutting, 3D CAD design, AutoCAD, and servomotors.
- Placed 1st out of 46 teams: only team to use a unique mechanism type, surpassing 2nd place by 73%.