# Patrick Lehman

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## Education

**University of Florida** Gainesville, FL

*Bachelor of Science in **Computer Engineering**, Minor in **Biology*** *August 2020 - December 2024*

**Notable Coursework**

*Software:* Machine Learning Fundamentals, Signals and Systems, Data Structures and Algorithms, Computational Linear Algebra, Natural Language Processing, Operating Systems

*Hardware:* Digital Design, Digital Logic and Systems, Microprocessor Applications

## Experience

**Machine Learning Engineer Intern** Mar. 2024 – Aug. 2024

*Ford Motor Company* *Dearborn,MI*

- Analyzed global analytics on plant efficiency and vehicle warranty usage to derive models for car defect forecasting and determine metrics of focus
- Discovered improperly calculated metrics by experimentally determining their lack of utility and successfully endorsed their replacement.
- Helped discover new metrics that more accurately determine warranty expenditure and vehicle defect rates

**Algorithm Engineering Intern** May 2023 – August 2023

*Neurava* *Baltimore, MD*

- Improved feature information capture by 358% through the automated calculation of energy-entropy ratio for various wavelets
- Analyzed biological signals using Continuous Transformers, Decision Trees and Wavelet Transforms
- Automated the discovery of new and efficient epilepsy detection algorithms by developing a feature extraction and model validation pipeline

**Machine Learning Research Intern** Nov. 2022 – April 2023

*Fire Neural Network* *Gainesville, FL*

- Utilized Pytorch Lightning and Weights and Biases to produce an automated pipeline that experimentally determined the best hyperparameters for a Vision Transformer used for image segmentation
- Produced internal tools for associating satellite images with related geoJSON data to produce files compatible with common mapping software, e.g. ArcGIS, QGIS
- Optimized model inference, increasing model throughput 4.5x

**Researcher** Jun. 2022 – Dec. 2022

*University of Florida Interactive Visualization and 3D Graphics Lab (SurfLab)* *Gainesville, FL*

- Trained and tested various segmentation models, including Video Vision Transformers and 3D UNet's
- Employed Lightning AI on the University of Florida hypercomputer to train the segmentation model on a distributed system of GPUs

## Projects

**Educatus** | *NextJS Web app for providing study/research utilities to students* Oct. 2022 - Oct. 2022

- Utilized the OpenAI API in conjunction with various task-specific models (BART, BERT,etc) to provide scholastic tools to students via a web app
- Functionality included: text summarization, automated text rephrasing for audiences of different technical levels, automatic quiz generation, Named Entity Recognition/definition and more

**Medmodeler** | *PyTorch Vision Transformer for segmenting CAT Scans* Jan. 2022

- Employed Tensorflow and PyTorch Lighting to produce a machine learning model for segmenting medical imagery
- Accurately reproduced standard medical image segmentations compatible with common medical visualization tools

**Rollsolid** | *Data-Based Tooling for Texas Holdem Poker* Jun. 2023

- Produced a Render-hosted API that utilized Stochastic simulations to approximate odds of winning for each hand
- Improved simulation speed by over 741% using parallel and nested hashing structures.
- Implemented common poker evaluation algorithms, such as implied pot odds and implied odds dollars

## Extracurriculars

**Clubs**: AI Research and Development Club (Technical Lead), UF Programming Club

**Competitions**: SwampHacks VIII (Winner), Work of Art Hacks (Winner), UF ASA Datafest(Winner), UF AI Days (Honorable Mention), Georgia Tech RoboTech