Yanni Etchi

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EDUCATION

University of North Carolina at Chapel Hill. Chapel Hill, NC

Bachelor of Science in Computer Science. *May 2025*

Relevant Coursework: Advanced Algorithms, Numerical Methods, Machine Learning, Computer Vision, Probability, Computer Systems and Architecture

PUBLICATIONS

Etchi, Y., Wang, D., Grosset, P., Turton, T., Ahrens, J., & Rogers, D. (2024). *An exploration of how volume rendering is impacted by lossy data reduction.* In *Proceedings of the 10th International Workshop on Data Analysis and Reduction for Big Scientific Data (DRBSD-10), The International Conference for High Performance Computing, Networking, Storage, and Analysis (SC).*

(Best Paper Runner-Up.)

Professional EXPERIENCE

Applied Machine Learning Research Assistant – Neurology. June 2024 – May 2025

School of Medicine – University of North Carolina at Chapel Hill *Chapel Hill, NC*

- Leveraged expertise in literature review, **statistical modeling**, and software development to provide **data-driven** solutions for the rs-FMR Lab at UNC School of Medicine, improving workflow efficiency and ensuring data integrity.
- Developed, trained and validated **multimodal deep learning** model to classify neuroimaging data with >90% accuracy, expediting real-time diagnostic procedure of epilepsy patients.
- Applied **transfer learning** to improve the model's performance for new neuroimaging data, enhancing its adaptability and accuracy for evolving datasets.

Data Science at Scale Intern May 2024 – Aug 2024

Los Alamos National Laboratory *Los Alamos, NM*

- Designed and developed a Python library for multi-method image quality assessment using **PyTorch** and **OpenCV**, supporting the assessment of **data reduction** on visualization of large-scale scientific data, utilizing **high performance computing** clusters
- Implemented ~22 pixel, structural, **statistical**, and **deep learning**-based full-reference and no-reference quality metrics to quantify image quality and compute image quality maps, through extensive **literature review** and **data-driven** assessments.

Research Intern– Machine Learning for Computational Chemistry May. 2023 – Aug 2023

University of Massachusetts at Dartmouth *Dartmouth, MA*

- Accelerated the identification of redox-active materials for non-aqueous redox flow batteries through comprehensive **literature review**, d**ata analytics**, and **machine learning** techniques.
- Conducted **exploratory data analysis** and preprocessing on extensive computational chemistry datasets to elucidate feature importance.
- Implemented and optimized ensemble regression models on a dataset of ~260 molecular structures, identifying molecules for solubility optimization and analyzing ~20 cation prospects from a ChemBL dataset of over 500 molecules.

Open-source PROJECTS

Image Caption Generator | *Python, TensorFlow, Flask, HTML, CSS, JavaScript*

- Developed and deployed a **deep learning** full stack application using **Express** and **Node.js** to encode image input from users and generate image-based captions.
- Achieved image feature encoding by utilizing a pre-trained convolutional neural network, alongside developing, training and validating a Long Short-Term Memory recurrent neural network for caption generation, on a dataset of ~ 3000 labeled images using **Keras** and **TensorFlow,** with accuracy >95%

AI News Article Reliability Predictor | *Python, TensorFlow, Flask, HTML, CSS, JavaScript*

- Developed and deployed a **machine learning** based web application using **Flask** and **Python** to provide real-time classification of news article reliability with >95% accuracy
- Employed **natural language processing** techniques such as text tokenization and vector embedding to preprocess sequences of news article data for training and validation of Long Short-Term Memory (LSTM) **recurrent neural network** on a test dataset of over 40,000 news articles.

TECHNICAL SKILLS

Languages: Java, Python, JavaScript, C, MATLAB, HTML, CSS

Frameworks and Libraries: Node.js, Express, Flask, Junit, Pandas, NumPy, Matplotlib, OpenCV, PyTorch, TensorFlow

Developer Tools: Git, Docker