Enrique Boswell Nueve IV

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Data Science ~ ML Ops ~ ML Engineer

Currently, a Ph.D. student in Computer Science with research focused on Machine Learning Theory and Algorithmic Economics. Outside of my Ph.D., I work as a Data Scientist in the banking sector, where I develop Machine Learning models and data related infrastructure. Previously worked as a machine learning engineer with work focused on developing deep learning methodologies for large-scale initiatives over edge networks for a national laboratory. Through my experiences, I bring skills and insights from scientific research and industry.

CORE PROFICIENCIES

Data Science | Artificial Intelligence | Machine Learning | Research & Development | Risk Analysis & Assessment
Project Management & Execution | Agile Development Methodology | Digital Technology | Software Programming
Training & Mentoring | Team Leadership | Active Learning | Deep Learning | Time Series Forecasting
Natural Language Processing | Edge Computing | Model Development | Model Deployment
Neural Networks | Geometric Deep Learning | Statistics | Regression | Hypothesis Testing

TECHNICAL SKILLS

Programming & Coding Languages: Python, GoLang, C++, R, JavaScript

Machine Learning: Tensorflow, PyTorch, Computer Vision, Natural Language Processing, Time Series Forecasting, Active Learning, Concept Drift Detection, Intelligent Document Processing, Reinforcement Learning

Other: Apache Airflow, Apache Spark, Docker, GCP (Google Cloud Platform), Kubernetes, Posit Cloud, Power Bi, Shiny (R and Python), SQL.

PROFESSIONAL EXPERIENCE

FEDERAL RESERVE BANK OF CHICAGO, SUPERVISION AND REGULATION DEPARTMENT   Spring 2022 to Present

Data Scientist

Performs exploratory data analysis, data engineering, and predictive modeling to help facilitate automation and monitoring of bank regulating processes. Core responsibility in the team is machine learning modeling and infrastructure development focused on business applications. Developed products for tasks such as earnings forecasting, visualizations, and intelligent document processing.

ARGONNE NATIONAL LABORATORY   Summer 2020 to Fall 2021

Machine Learning Engineer

Conducted machine learning engineering for the SAGE project to build nationwide network of smart sensors utilizing artificial intelligence. Developed methodology for nowcasting (short-term weather forecasting) on the edge. Conducted research in active learning, concept drift detection, and online learning techniques for the edge.

- Wrote research paper, "WeatherNet: Nowcasting Net Radiation on the Edge," that was published in IEEE journal (https://ieee-sustech.org/).
- Developed methodology for active learning on the edge to assist with edge caching, edge offloading, and model training.
- Leveraged Agile development practices to perform R&D for deep learning over edge computing and model development, model deployment, and optimization for inference on the edge.

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<u>*NORTHERN ILLINOIS UNIVERSITY*</u>   2018 to 2020

Research Aide, Data Lab / CS Department

Conducted research for an NLP lab and served as a research assistant for a professor for Computer Vision in the CS department at at Northern Illinois University. Researched time-series forecasting, natural language processing, and geometric deep learning and worked on various methodologies for model interpretability.

- Co-authored paper, "Analyzing Scientific Factors to Understand Reproducibility," exploring trends using Natural Language Processing to determine whether research was reproducible or not.
- Focused on implementing deep learning methods for model interpretability for facial recognition.

EDUCATION & CREDENTIALS

Ph.D. student in ML Theory and Algorithmic Economics, CU BOULDER ~ 2021-Present ~ (Expected SP 2026)

B.S. in Statistics, Magna Cum Laude, NORTHERN ILLINOIS UNIVERSITY, IL ~ 2020

Associates of Engineering, Summa Cum Laude, ELGIN COMMUNITY COLLEGE, IL ~ 2018

Associates of Science, Summa Cum Laude, ELGIN COMMUNITY COLLEGE, IL ~ 2018

<u>Publications</u>

- **Trading off Consistency and Dimensionality of Convex Surrogates for the Mode**
  By Enrique Nueve, Bo Waggoner, Dhamma Kimpara, and Jessie Finocchiaro
  In submission, 2024

- **The Structured Abstain Problem and the Lováz Hinge**
  By Jessie Finocchiaro, Rafael Frongillo, and Enrique Nueve
  Published in Conference on Learning Theory (COLT) 2022, 2022

<u>Pre-Graduate School Publications</u>

- ***WeatherNet: Nowcasting Net Radiation on the Edge***
  By Enrique Nueve, Bobby Jackson, Sean Shahkarami, Rajesh Sankaran, Scott Collis, Nicola Ferrier, and Peter Beckman
  Published in IEEE SusTech 2021

- ***Addressing the Constraints of Active Learning on the Edge***
  By Enrique Nueve, Sean Shahkarami, Nicola Ferrier, and Seongha Park
  Published in IEEE IPDPSW workshop PAISE 2021

<u>Presentations</u>

- *WeatherNet: Nowcasting Net Radiation on the Edge.* 2020, accepted to present at the American Meteorological Society's 20th Conference on Artificial Intelligence.