Benjamin Daniel Poole

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Education

University of North Carolina at Charlotte, *PhD in Computer Science* 2020-Expected 2026
University of North Carolina at Charlotte, *MS in Computer Science* 2018–2020
University of North Carolina at Charlotte, *BS in Computer Science* 2014–2018

Experience

Primary Instructor and Co-Instructor, UNC Charlotte – Charlotte, NC 2019-Present

- Developed and instructed intro machine learning and applied machine learning curriculum.
- Gained vital communication skills for teaching difficult and technical concepts by designing intuitive materials.

Data Analytics Intern , Klarrio – Apex, NC May-Aug 2019

- Researched and developed stateful streaming prototype using Pulsar for visualizing Twitter analytics data using AWS, Docker, Python, and Java.
- Helped display the usability of new streaming technology for the company to integrate into their workflow.

Software Engineer Intern, IBM – Durham, NC May-Aug 2017

- Command line software developer for IBM's cloud open source project OpenWhisk, a Function-as-a-Service (FaaS) cloud platform.
- Developed quality of life CLI tools for OpenWhisk for developers and users via Go and Scala.

Projects

Interactive Reinforcement Learning (https://github.com/RL-BCI-Lab/intrl) 2023-Present

- Designed code base for interactive reinforcement learning (RL), allowing for humans to capture demonstrations and feedback for RL agents.
- Implemented various imitation algorithms and designed a novel algorithm for integrating human feedback.

GC4EPTN (github.com/RL-BCI-Lab/gc4eptn) 2023-2024

- Explored Guassian graphical models for graph construction of electrical power transmission networks (EPTNs) using a real-time simulated EPTN dataset.
- Gained experience as machine learning project lead, collaborating with domain specialists for data gathering.

DeepBCI (github.com/RL-BCI-Lab/deepbci) 2021-2022

- Led project investigating the ability of machine learning models to classify variations in error-related potential (ErrP) brain signals to better understand the transferability of models trained on different ErrP variations.
- Collected brain-computer interface (BCI) data across multiple subjects. Developed code base for loading, preprocessing, visualizing, and running deep learning and classical machine learning models for BCI data.

OpenWhisk CLI Development

- Developed quality-of-life updates for users and developers using OpenWhick's command line API.
- Merged multiple projects: Last Flag, Bashauto Script, Limit HTTP body, Alphabetize Listings

Publications

Data-Driven Graph Construction of Power Flow Graphs for Electric Power Transmission Networks. ICMLA, 2024.

Towards interactive reinforcement learning with intrinsic feedback. Neurocomputing, 2024. 10.1016/j.neucom.2024.127628

Error-related Potential Variability: Exploring the Effects on Classification and Transferability, SSCI, 2022. 10.1109/SSCI51031.2022.10022137

Technical Skills

Languages: Python, Java, Go, C#
Developer Tools: PyTorch, TensorFlow, Keras, Sklearn, NumPy, Git, Docker, Linux, Slurm