

WORK

Summer Internship @ East Carolina University (Sponsored by NSF)

05/2023 – 07/2023

Software & Data Analytics Research Experience for Undergrads

- Proposed, implemented, and wrote the paper for my transformer AI model, *Sourceformer*, showcasing my ability to quickly learn and work on unfamiliar, complex, cutting-edge projects.
- Utilized PyTorch attempting a novel method to better teach AI how to use tools, specifically a calculator and gained valuable insight into the effects of data quality and quantity during the LLM AI training process.
- Deep learning optimization, weekly progress presentations, a focus on solving problems without guidance, and carefully weighing time and feature implementation tradeoffs given the tight end-of-summer deadline.

Undergrad Software Developer @ Arkansas State University

12/2021 – 04/2023

Full-Stack Web Development & Artificial Intelligence

- Technical lead for an 8 person interdisciplinary research project using deep learning to generate the optimal font for dyslexic readers.
- Honed my software engineering expertise—things like abstraction, decoupling, refactoring, unit testing, and UI design—by creating and deploying the website used to collect dyslexic reader data utilizing Django and PostgreSQL.
- Successful and efficient comprehension of the larger model's (*Attr2font*, a GAN) codebase and integration of the specialized CNN AI model trained on the collected website data.
- Effectively communicated technical solutions/problems to non-technical team members.

Vehicle Detailing Business

10/2019 – 09/2021

Self-Employed Entrepreneur

- Established a client base with many repeat customers that lasted two years before accepting my job with Astate.
- A tremendous lesson in soft-skills, sales, service-quality expectations, client trust, and resilience.

EDUCATION AND SKILLS

B.S. in Computer Science @ Arkansas State University

08/2021 – 06/2024

Honors :: GPA 3.81

Programming Languages: Python, C++, HTML/CSS/JS, PostgreSQL

Data Science: PyTorch, NumPy, Hugging Face, SciPy, Scikit-learn, Pandas, Tensorflow

DevOps: Linux (command line), Conda, Python virtualenv, Tmux, Git, Github, Heroku

Frameworks: Django, Flask

PERSONAL INITIATIVES

Deep Learning Specialization Courses

Course list: Neural Networks and Deep Learning; Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization; Structuring Machine Learning Projects; Convolutional Neural Networks; Sequence Models

Projects

Graffiti Banner: Let others leave notes on your Twitter banner, *Indie Chrome:* Filter out search results from the 1000 most popular websites, *LinkFeed:* Social media for the IndieWeb, *Avant-Gardes V1 Rick Rolled:* An NFT project that interfaced with the Ethereum blockchain.

My Blog & Book

Short-form articles and my memoir.

Personal Reading

130+ books (mainly nonfiction).



September 5, 2023

Dear Madam or Sir:

It is my pleasure to write you in support of Eli Richmond's application. I have known Eli since May 15, 2023, when he joined the Research Experiences for Undergraduates (REU) in Software and Data Analytics program at ECU. I believe Eli is an excellent candidate because he has great analytical and technical skills, is passionate about deep learning and natural language processing, is very professional, and has great communication skills.

During the REU, participants had to present their progress and provide feedback to their colleagues once a week, meet regularly with their faculty mentors to present updates on their projects and discuss plans for next steps, and participate in a weekly journal club. Eli was frequently praised by faculty and peers for his great presentations of his progress, and usually asked his colleagues insightful questions about their projects. During our regular meetings he always came prepared, on time, and delivered what he proposed to do in the previous meeting. He worked well with very little supervision – all I had to do is provide a development environment for his project, which focused on tools integration into transformer through source code. He connected to the remote Linux server, installed all the prerequisites, and ran the experiments. For the journal club he proposed the most recent, impactful articles, and led their discussion, during which he showed good understanding of the methods used and experimental design.

On a personal level, I very much enjoyed the few informal conversations I had with him, during which we discussed various topics. These inspired me to read some of his favorite books.

In short, I would highly recommend Eli. If I can be of any further assistance, or provide you with any additional information, please do not hesitate to contact me.

Yours sincerely,

A handwritten signature in black ink that reads "Nic Herndon". The signature is written in a cursive, slightly slanted style.

Nic Herndon, PhD

Assistant Professor and Graduate Program Director

Department of Computer Science

East Carolina University

Science and Technology Building, Room C-108 | Mail Stop 520 | Greenville, NC 27858

(252) 328-9696 | herndon19@ecu.edu | <https://myweb.ecu.edu/herndon19>



COLLEGE OF ENGINEERING & COMPUTER SCIENCE

Department of Computer Science | P.O. Box 9, State University, AR 72467 | o: 870-972-3978 | f: 870-972-3950

To Whom It May Concern:

It is my honor to recommend Mr. Eli Richmond. He is an outstanding undergraduate student pursuing a B.S. in Computer Science at Arkansas State University. Eli has been a student in many of my courses, and I have been extraordinarily impressed with his academic progress, both inside and outside of the classroom. His motivation and academic curiosity are qualities that set him apart from his peers.

In addition to his coursework, Eli has been the lead undergraduate research assistant on a unique, interdisciplinary project titled "Dyslexia and AI: The Use of Artificial Intelligence to Identify and Create Fonts to Improve the Reading Ability of Individuals with Dyslexia." Along with the Department of Computer Science, this project involves faculty from the Department of Teacher Education, Department of Art+Design, Department of Psychology, and Department of Communication Disorders. His work on this project showcases his ability to communicate and interact with individuals beyond the area of computer science.

Eli took the lead on multiple implementation details related to the aforementioned project. These include coordinating the design and implementation of the user interface, implementation of AI/ML models for training and testing, and actively participating in a summer camp for K-8 students to collect real-world data. He is one of the recognized authors of the manuscript published in the 2023 Society for Information Technology & Teacher Education (SITE) conference proceedings and was a co-presenter of this work during the 34th International SITE Conference on March 14, 2023.

In closing, I would like to reiterate my support for Mr. Eli Richmond. Please feel free to contact me if you have further questions.

Sincerely,

Jake A. Qualls, Ph.D.
Assistant Professor of Bioinformatics
Department of Computer Science
Arkansas State University
jqalls@astate.edu



ARKANSAS BIOSCIENCES INSTITUTE

P.O. Box 639, State University, AR 72467 | o: 870-972-2025 | f: 870-972-2026

August 21, 2023

To Whom it May Concern:

I've had the pleasure of working with Mr. Eli Richmond on a research project "Dyslexia and AI: The Use of Artificial Intelligence to Identify and Create Font to Improve Reading Ability of Individuals with Dyslexia", an ongoing collaborative research project on the effects of font on people with dyslexia. This research has been presented at the NSSA 2022 conference in San Diego, California, and the SITE 2023 conference in New Orleans in March. The latter conference will also publish a proceedings journal with a paper version of our presentation included.

Mr. Richmond has been invaluable in this project. He was responsible for developing a web application for testing how the performance of dyslexic students changed when they were exposed to different fonts. Mr. Richmond performed well on this task, successfully meeting expectations, accommodating revisions, and conducting himself in a professional manner. Additionally, he was our primary presenter at the SITE 2023 conference.

I am pleased to see the Mr. Richmond is continuing to develop himself in the field of Computer Science. He has demonstrated himself to be a skilled programmer, able to solve problems, and capable of working with others. I believe he would make a valuable employee in whatever field he applies himself.

Sincerely,

Jonathan Stubblefield
Assistant Professor

