Joseph Anthony Bosco IV

NLP & Predictive Analytics Computer Scientist

github.com/JackBosco
linkedin.com/in/jackbosco
jackbosco007@gmail.com

Education

- **Washington and Lee University**, Bachelor of Science in Computer Science
  Class of 2024
  GPA: 3.88 (Overall), 3.96 (Major)
  Relevant Coursework: Generative AI, Machine Learning, Databases, Distributed Systems, Parallel Computing
- **Columbia University**, Master of Science in Computer Science
  Class of 2025

Programming Skills & Certifications

- **Programming Skills:**
  - Python, C, Git, Linux, AWS, SQL, Neo4j, PyTorch, NumPy, Scikit-learn, Pandas
  - Machine Learning, NLP, Predictive Analytics, Computer Vision, Data Mining, Cloud Computing
- **Certifications:**
  - New York Life and Health Certified Insurance Agent
  - Securities Industry Essentials (SIE) Exam - Passed

Research

- **AI Research Intern, Copado**
  June - August 2024
  Analyzed GPU memory consumption for multithreading with sentiment analysis classifier. Programmed AI model in Python for retrieval augmented generation (RAG) using vector similarity search with Neo4j.
- **Computer Vision Research, Dept. of Neuroscience, Washington and Lee University**
  April - May 2024
  Developed visual transformer model to classify images of ovarian structures in rats with 98% accuracy.
- **Machine Learning Research Assistant, Dept. of Neuroscience, Washington and Lee University**
  January - April 2023
  Suggested ML algorithms for predictive modeling. Developed neural net classifier using PyTorch and NumPy with 96% classification accuracy.
- **Data Mining Intern, Dept. of Data Science, Washington and Lee University**
  June - September 2022
  Collaborated on data collection and established research base listing over 95 for digital estate management services.

Teaching

- **Teaching Assistant, Dept. of Computer Science, Washington and Lee University**
  September 2021 - April 2022
  Advised students taking CSCI-111: Introduction to Programming in Python. Organized and delivered office hours for CSCI-112: Advanced Introduction to Programming and Data Structures in C.

Open Source Contributions

- **CytoMod NIH codebase**
  github.com/JackBosco/CytoMod
  Resolved dependency issues and fixed deprecation errors in NIH Cytomod research initiative.
- **Spider Mortality Estimation Model**
  github.com/Toporikova-Lab/Spider-Circadian-Activity
  Created a model to classify spider mortality based on time series movement data.
- **Ovarian Structure Classifier**
  Developed a visual transformer model for classifying MRI scans of rat ovarian structures.
- **NYU Langone Medical Center Knee Alignment Research**
  github.com/JackBosco/AI_CPAK
  Collaborated with medical professionals to analyze pre and post-operative knee replacement data. Predicted optimal post-operative knee alignments for robot-assisted total knee replacement surgery with neural network. Reported methods and results with visual representations for 2024 ISTA paper.

Publications

- **Prediction of Coronal Alignment in Robotic-Assisted Total Knee Arthroplasty With Artificial Intelligence**
  International Society for Technology in Arthroplasty (ISTA) Annual Congress, June 2024
- **The Ethics of Telemedicine**
  NYU Bulletin of the Hospital for Joint Diseases (BHJD) Journal, Volume 79, Number 2, June 2021

Projects

- **W&L Assistant - Fine Tuned LLM**
  Scraped W&L website and used data to fine-tuned a 2.7 billion parameter Microsoft Phi2 base model with QLoRA.
- **Cover Letter Writer - Personalized ChatGPT Agent**
  Developed a customized version of ChatGPT for enhanced professional assistance.
- **Kaggle Competition**
  Created a deep learning model for the Kaggle Titanic competition, achieving 78% accuracy.

Extracurricular Activities

- Varsity Wrestling, Academic All-American
- Health and Safety Officer, Pi Kappa Alpha Fraternity, Pi Chapter
- President, Washington and Lee oSTEM chapter