


Jalen Neal

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EDUCATION

- **Virginia Tech** Blacksburg, VA
• *MEng - Computer Engineering* Jan 2025 -
Major: Machine Learning
- **Virginia Tech** Blacksburg, VA
• *BS - Computer Engineering*
Major: Machine Learning

RELEVANT COURSEWORK

- Machine Learning; Artificial Intelligence and Engineering Applications; Intro to Computer Vision; Digital Image Processing; Network Application Design; Computer and Network Security Fundamentals; Applied Software Design; Data Structures and Algorithms;

SKILLS

- **Languages/Frameworks:** Tensorflow, Pytorch, Django, Python, C/C++, HTML/CSS, ReactJS, JavaScript, REST
- **Tools:** AWS, Git, Cmake, Docker, Visual Studio Code, Pycharm, Figma
- **Soft Skills:** Leadership, Event Planning, Management, Public Speaking, Time Management

EXPERIENCE

- **Collins Aerospace** Cedar Rapids, IA
• *Software Engineer (Intern)* May 2022 - Nov 2022
 - Collaborated with a cross-functional team to enhance data processing, storage, and overall system efficiency through codebase refactoring
 - Played a pivotal role in receiving and converting data into JSON/XML formats to update and optimize existing Avoidance Reroute (ARR) configurations
 - Contributed to the development of robust testing and validation protocols for the ARR product line, ensuring reliability and quality.
 - **Tech:** Python, C++
- **Virginia Tech** Blacksburg, VA
• *Undergraduate Research Assistant, Reimagining Diversity* Dec 2021 - May 2024
 - Designed and implemented an administrative portal to enhance project efficiency and security
 - Delivered informative briefings to the administration and shareholders regarding website development initiatives
 - Solely developed a comprehensive web application prototype using Django, encompassing 100% of the project
 - Devised a timeline for web application development, employing agile methodologies for optimal project management
 - Spearheaded the planning and execution of new strategies to bolster team efficiency and project execution
 - **Tech:** Django, HTML, CSS, Java Script, and Python
- **Virginia Tech** Blacksburg, VA
• *Undergraduate Research Volunteer, Research* Sep 2019 - Nov 2019
 - Collaborated with Dr. R. Mueller and graduate students in constructing a biosensing sonar drone
 - Elevated the Convolutional Neural Network (CNN) protocol, optimizing its efficiency and effectiveness
 - Achieved an 18% improvement in data analysis efficiency, increasing accuracy from 72% to 90%
 - **Tech:** Python, Tensorflow

PROJECTS

- **Senior Design Project - (Machine Learning-Computer Vision/Small Object Detection):** I collaborated with a diverse team of engineers in a transdisciplinary setting, where we implemented YOLOv8 alongside Slicing Aided Hyper Inferencing and Tiling techniques to improve Mean Average Precision (mAP). My responsibilities included conducting comprehensive testing, including assessments of mAP, Precision, Recall, and Robustness, ensuring the development of a reliable product. Our efforts yielded an average 8% increase in mAP, with select instances demonstrating an impressive 12% enhancement compared to the base model.
- **Applied Software Design Project - (VT Prolog):** Engineered a compact ISO Prolog interpreter alongside an integrated IDE, enabling users to author knowledge bases (KBs) and perform queries using first-order logic (FOL). Diligently conducted comprehensive testing to validate system robustness and user-friendliness. Elevated system performance and user experience by introducing advanced capabilities, including Concurrency, backward chaining, and tracing features.
- **Machine Learning Project - (Generative AI):** Led the development of a specialized generative text-to-image model using DCGAN for a curated web design image dataset. Independently curated and refined a custom dataset, guaranteeing data quality through rigorous collection and cleaning processes. Designed and implemented a dedicated dataset loader to streamline data integration, ultimately elevating model performance.
- **Machine Learning Project - (Adaptive AI):** Built an adaptive email classification system using a fine-tuned BERT model, improving accuracy from 72% to 95%. Leveraged the Gmail API and NLP techniques to process diverse email formats and track job applications. Optimized performance using recall, precision, and F1-score, while designing a scalable backend to simulate AGI-like multitasking.