Jacob Davis

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Education

Clemson University **Expected Graduation**: *May 2027*

Bachelor of Science in Computer Science and Mathematical Sciences **GPA**: *4.0/4.0*

- **Associations**: ACM, ICPC, CUhackit, Undergraduate Teaching Assistant, CU Symphony Orchestra, CU Honors College
- **Scholarships:** Palmetto Fellows Scholarship, National Beta Club Scholarship, WTSDA Region 7 Scholarship

Skills

- **Technologies:** Python, C++, C, PyTorch, JavaScript, UVM, SystemVerilog, MATLAB, SQL, Linux, HTML/CSS, Git, Unix
- **Relevant Courses:** Algorithms and Data Structures, Software Engineering, Database Management Systems

Experience

Clemson University International Center for Automotive Research **Greenville, SC**

Machine Learning Engineer Intern *Aug. 2024 – Present*

- Trained computer vision models for auto-labeling and segmenting image data, achieving **95%** accuracy in differentiating vegetation and trails for an off-road vehicle.
- Refined segmentation models for LiDAR point cloud data in MATLAB, improving obstacle detection accuracy to **85%**.

Cadence Design Systems **San Jose, CA**

Application Engineer Intern *May 2024 – Aug. 2024*

- Achieved **99%** functional coverage in a sous vide controller design using Universal Verification Methodology, incorporating the Direct Programming Interface with C++ to utilize data mining to process simulation data.
- Programmed a directed testing workbench with randomized tests in SystemVerilog, pinpointing over **20** bugs in the RTL code for a controller design across **30+** features.
- Designed C++ and Python programs to automate elaborating and running simulations in Cadence Xcelium and SimVision in Linux, increasing workflow efficiency for simulating test cases by **30%**.
- Delivered two technical design reviews working with a verification team, ensuring alignment with design specifications.

Network Systems and Control Group **Clemson, SC**

Machine Learning Research Assistant *Sept. 2023 – Present*

- Implemented neural networks leveraging gradient clipping and distributed computing on Clemson's Palmetto Cluster, improving image classification accuracy by **15%** compared to conventional algorithms in heterogeneous settings.
- Led 10+ research meetings about learning PyTorch and using AWS resources for high-performance computing.

Clemson Cadence Project **Clemson, SC**

Student Ambassador *Jan. 2024 – May 2024*

- Organized a networking event consisting of **50+** attendees for students to learn about Cadence computational software.
- Won the Clemson Cadence Challenge, earning **70** certifications in Cadence simulation tools for electrical circuit design.

Cardiovascular Modeling & Experimentation Research Laboratory **Clemson, SC**

Computational Biology Research Assistant *June 2023 – July 2024*

- Created over **10** models of patients' carotid artery bifurcation regions with open source software for CFD and modeling.
- Developed Python scripts to determine a patient's point of stenosis with **50%** efficiency over manual inspection.

Projects

Virtual Reality Piano Simulator

- Constructed a 61-key piano simulator in virtual reality utilizing Unity and C#, earning the "Best Game Award" at CUhackit.

Music Guessing Game

- Produced a 50+ song music-guessing game with React titled "Leaftle," winning the "Best .tech Domain Award" at CUhackit.

RPS Computer Vision Game

- Utilized a hand-tracking algorithm to identify rock, paper, or scissors with **90%** accuracy in a vision game using Pygame.