Jacob Davis

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Education

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

- **Bachelor of Science in Computer Science and Mathematical Sciences** **GPA**: *4.0/4.0*
- **Associations**: ACM | ICPC | CUhackit | CU Game Dev | CU Symphony Orchestra | Dixon Fellows | Cadence Career Catalyst
- **Scholarships:** Palmetto Fellows Scholarship | National Beta Club Scholarship | WTSDA Region 7 Scholarship

Skills

- **Technologies:** Python | C++ | C | PyTorch | Java | UVM | SystemVerilog | MATLAB | NumPy | Linux | Blender | Git | Unity
- **Relevant Courses:** Data Structures and Algorithms | Software Development Foundations | Linear Algebra | Statistics II

Experience

Machine Learning Engineer Intern | *VIPR-GS* *Aug 2024 – Present*

- Trained computer vision models (YOLOv8 and SAM 2) 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 MathWorks, improving obstacle detection accuracy to 85%
- Engineered a customized segmentation machine learning model into an existing framework for a Polaris RZR, leading to 10% increased accuracy in identifying navigable terrain

Application Engineer Intern | *Cadence Design Systems* *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++ for data processing of simulation parameters
- Established a directed testing workbench with randomized testing 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

Machine Learning Research Assistant | *Clemson University* *Sept 2023 – Present*

- Implemented neural networks with gradient clipping and leveraging distributed computing on Clemson's Palmetto Cluster, improving image classification accuracy by 15% while reducing processing time by over two hours per dataset
- Led 10+ research meetings regarding utilizing PyTorch and AWS resources for high-performance computing

Clemson Cadence Project Ambassador | *Clemson University* *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 computational software tools

Computational Biology Research Assistant | *Clemson University* *June 2023 – July 2023*

- Created over 10 3D-models of patients' carotid artery bifurcation regions using SimVascular for fluid-dynamic analysis
- 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

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