Joseph Olufemi Davis

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Education

Howard University | GPA: 3.98/4.0 — Washington, DC
Bachelor of Science in Computer Science, Karsh STEM Scholars Program — *Expected May 2029*

- MATH 180: Linear Algebra
- MATH 189: Probability and Statistics I
- MATH 181: Discrete Structures

Stanford University | GPA: 3.7/4.0 — Palo Alto, CA
Visiting Undergraduate Summer Session — *June 2024 – Aug. 2024*

- CS106B: Programming Abstractions
- MATH 21: Calculus 2

Saint John's School — Houston, TX
High School Diploma — *Aug. 2021 – May 2025*

- AP Computer Science A
- AP Calculus AB

Research Experience

Yale University — June 2026 – Present
Undergraduate Researcher — *Interactive Machines Group*

- Conducting research on the use of counterfactual explanations to model fairness perceptions in Human-Robot Interaction
- Collaborating with Dr. Marynel Vázquez and Austin Narcomey to build an ML pipeline to generate actionable counterfactuals
- Utilizing libraries such as PyTorch, NumPy, Pandas, scikit-learn, etc. for model building and testing

Howard University — Aug. 2025 – May 2026
Undergraduate Researcher — *College of Engineering and Architecture*

- Conducted research comparing Point Cloud, Voxel, and Mesh-based methods for 3D object detection using deep learning
- Collaborating with Dr. Danda B. Rawat to refine research questions and methodologies
- Utilized libraries such as PyTorch and TensorFlow to implement and evaluate models on benchmark datasets

Algoverse Research Program — June 2024 – Aug. 2024
Student Researcher — *Virtual*

- Conducted research on the use of 2D Convolutional Neural Networks (CNNs) to differentiate between MRI scans of pancreatitis and pancreatic cancer
- Collaborated with a team of peers and mentors to refine research questions and methodologies
- Gained an understanding of the research process, including literature review, data collection, model development, and result analysis
- Utilized libraries such as Pytorch, NumPy, and pandas for data manipulation and model building

Publications

Davis, JO, Rawat D. Comparative study of point cloud, voxel, and mesh representations for 3D semantic object detection, Proc. SPIE 14043, Artificial Intelligence and Machine Learning for Multi-Domain Operations Applications VIII, 1404316 (11 Jun 2026)

Presentations

Davis, JO, Rawat D. Comparative study of point cloud, voxel, and mesh representations for 3D semantic object detection. Howard University College of Engineering and Architecture Research Expo, Washington, DC, March 2026. (Poster Presentation)

Davis, JO, Rawat D. Comparative study of point cloud, voxel, and mesh representations for 3D semantic object detection. SPIE Defense and Security, National Harbor, MD, April 2026. (Poster Presentation)

Relevant Projects

Jam Plan Scheduling Algorithm | *Java, CSV* March 2025 – April 2025

- Designed and implemented a scheduling algorithm that optimizes class schedules for 700+ students based on their course preferences and availability
- Utilized Java to read and process student data from CSV files, applying constraint satisfaction techniques to generate optimal schedules
- Deployed the algorithm to assist academic advisors with course planning, resulting in improved student satisfaction and reduced scheduling conflicts

Sign Language Translator | *Python, Tensorflow, Keras, OpenCV, MediaPipe* Jan. 2025

- Developed a real-time sign language translator that converts American Sign Language (ASL) gestures into text using computer vision and deep learning techniques
- Built a dataset of 10,000+ ASL gestures using OpenCV for image capture and augmentation
- Utilized MediaPipe to capture hand landmarks and preprocess input data for the model
- Trained a Convolutional Neural Network (CNN) using TensorFlow and Keras to classify ASL gestures with high accuracy

Technical Skills

Languages: Python, Java, C/C++, JavaScript, HTML/CSS, LaTeX
Frameworks: TensorFlow, Pytorch, MediaPipe, YOLO
Developer Tools: Git, VS Code, IntelliJ, Pycharm, Jupyter Notebook
Libraries: pandas, NumPy, Keras, Matplotlib, OpenCV, Scikit-learn

Hobbies

I am a member of a rock climbing team and enjoy climbing at local gyms and outdoor locations. I also enjoy playing violin in the Howard University Symphony Orchestra as concertmaster.