

# Samuel Wales-McGrath

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## EDUCATION

**The Ohio State University**  
*B.S. in Honors Computer Science Engineering, Minor in Math — GPA: 4.0*  
*Relevant Courses:* Linear Algebra, Discrete Structures, Software Development (Java), Software Components (Java), Calculus 3

Columbus, OH  
*Expected May 2027*

## EXPERIENCE

**M2 Global Services**  
*Backend Developer Intern*

Cleveland, OH  
*June 2024 – July 2024*

- Coordinated efforts with frontend developers to build backend services for a client feedback portal using Django and Firebase, implementing secure user authentication to support 500+ user sessions during the pilot phase.
- Optimized feedback processes, improving data retrieval efficiency by 24%, and implemented scalable database schemas managing 1,000+ feedback entries.
- Designed API endpoints for real-time updates and analysis, driving a 17% increase in user engagement.

**Case Western Reserve University**  
*YES Intern in Pediatric Brain Cancer Research*

Cleveland, OH  
*June 2023 – August 2023*

- Collaborated with researchers to analyze colony-forming assays, assessing the radiosensitizing effects of CDDO-2P-Im in DIPG cells and advancing insights into radiation therapy.
- Authored a detailed manuscript outlining findings and proposed methodologies for future in vivo studies.
- Presented research at a capstone event, earning the Scientific Advancement Award for innovations in DIPG treatment.

## PROJECTS

**Computer Vision Form Analysis** | *Python, MediaPipe, YOLO, PyTorch, React, Django*

July 2024 – Present

- Developed an AI model leveraging Python, MediaPipe, and YOLO to analyze soccer shooting form, providing actionable feedback for players.
- Mitigated overfitting by expanding labeled datasets and optimizing model performance with PyTorch on diverse video footage.
- Building a full-stack application with React and Django, integrating user authentication via RESTful APIs and JWT, and supporting interaction with the AI model.

**Full-Stack Rehabilitation Tracker** | *Next.js, Node.js, Firebase, Tailwind CSS*

December 2023 – February 2024

- Created a rehabilitation tracker enabling users to log daily progress and uncover trends using a Firebase database.
- Resolved user authentication challenges by mastering Firebase, successfully implementing secure signup and login features.
- Designed a responsive UI with Tailwind CSS and deployed on Netlify, ensuring accessibility and functionality across devices.

## EXTRACURRICULAR INVOLVEMENT

**Perception Algorithm Developer** | *Buckeye AutoDrive Team*

August 2024 – Present

- Developed 2D/3D detection, classification, and sensor fusion algorithms to enhance autonomous vehicle perception, including HD mapping and V2X communication using PyTorch.
- Implemented tracking, lane detection, and LiDAR transformation algorithms, while documenting processes and creating training materials.

## TECHNICAL SKILLS

**Programming Languages:** Python, Java, SQL, JavaScript (Next.js/Node.js), HTML/CSS, R  
**Frameworks and Technologies:** React, Django, Flask, PyTorch, MediaPipe, Firebase, AWS, Docker, Tailwind CSS  
**Developer Tools:** Git, Google Colab, VS Code, Visual Studio, Eclipse  
**Libraries:** NumPy, pandas, Matplotlib, YOLO