Miles Modeste

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EDUCATION

Wesleyan University, Middletown, CT May 2025
B.A. in Computer Science, minors in Design Engineering & Applied Sciences, East Asian Studies

EXPERIENCE

Research Assistant, *Wesleyan Soft Robotics Lab,* Middletown, CT Sep 2024-Sep 2025

- Developed C++ and Python code to enable efficient hardware communication between low-level electronic chips, microcontrollers, and external devices.
- Directed project coordination, keeping workflow and task assignment organized using GitHub.
- Led and mentored 2 new assistants through onboarding and integration.
- Maintained technical documentation for product reproducibility.

Studio Intern, *AJK Architekten BDA*, Frankfurt am Main, Germany Jul 2022–Aug 2022

- Communicated in German with team of 3 to conduct on-site Measurement Survey for residential renovation project.
- Created digital copy of historical floorplan and 3D renderings for preservation using ArchiCAD 25.
- Applied studio-standard modeling techniques to construct high quality replica models.

PROJECTS

Capacitive Soft-Sensor Sleeve, *Wesleyan University* Aug 2025

- Developed 20 soft-sensor array for integration into a flexible robotic sleeve, enabling human interaction and proximity sensing via I2C communication. Credited as co-author in forthcoming publications.
- Implemented custom data structure to scale sensor array from 1-20 while maintaining measurement frequency and enabling support up to 228 sensors.
- Optimized hardware communication to increase sensor capacitance range from 15-60pF, reducing noise and enhancing near-field sensitivity.
- Designed custom binary protocol using bit packing to increase data transmission speed between microcontroller and Python.
- Developed tests to simultaneously collect sensor and robotic arm position data.

Using Machine Learning and Web Scraping to Understand Online Spaces May 2025

- Built data pipeline using facial recognition (facial_recognition), sentiment analysis (Vader Sentiment), and web scraping (YouTube API) to analyze online video and comment interactions.
- Implemented modular system capable of scraping hours of video and thousands of comments, using Python (Pandas, NumPy, OpenCV) to structure input for machine learning models.

Obstacle Avoiding Robot May 2025

- Engineered small autonomous 4 wheeled robot capable of correcting against potential crashes using a single IR proximity sensor.
- Programmed finite state machine for real-time decision making from sensor feedback.

SKILLS

Technical: Python, C++, C#, C, HTML, CSS, Java, JavaScript
Tools: GitHub, Unity, SolidWorks, ArchiCAD 25, Rhino, ArcGIS
Languages: Native English & German, Intermediate Japanese, Conversational Chinese