Rowan Morse

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EDUCATION

UNIVERSITY OF PITTSBURGH — Pittsburgh, PA
B.S. Computer Science, Data Science   *GPA: 3.73/4.00*   *Expected Graduation: April 2027*

- Relevant Coursework: Data Structures & Algorithms, Discrete Structures, Linear Algebra, Regression, Calculus 2

EXPERIENCE

Computer Vision Research Assistant — Febuary 2025 – Present
University of Pittsburgh — *Pittsburgh, PA*

- Adapting object understanding capabilities of vision-language models for improved usability around the world.
- Engineered pipeline integrating satellite data with **vision-language and diffusion models** by aligning satellite-derived geographic context with detection frameworks and supplying geological context for diffusion and recognition, improving AI robustness under diverse regional conditions.

Software Engineer & Consultant — January 2025 – Present
Medpath — *Pittsburgh, PA*

- Developed full-stack medical education platform benefiting staff and trainees, leveraging Scrum sprints, Next.js, and TypeScript to streamline knowledge-sharing pipeline and optimize release cycles.
- Built backend system powering role-based schemas, APIs, and secure user access, ensuring scalable data architecture using TypeScript, Supabase, and PostgreSQL.

AWARDS

CMU Tartan Hacks Hackathon — Pittsburgh, PA
Dream Catcher: **1st – Best Use of Generative AI, 2nd – Best Content Creation Hack ($3,000)** — *February 2025*

- Won first place among **775 competitors** and **176 projects** from 37 colleges
- Developed innovative pipeline to capture dream images, leveraging robust EEG encoding, fine-tuning diffusion model, & employing CLIP-based alignment, transforming brainwave data into high-quality images.
- Integrated a video synthesis module to convert static images into dynamic, TikTok-style videos, and built a user-centric front-end featuring social sharing and a dream journal for interactive multimedia content.

PROJECTS

Botify | *Python, Flask, OpenAI API, Spotify API, React, OAuth2, Spotipy, AWS* — December 2024 – January 2025

- Created AI-driven music assistant by integrating OpenAI, Spotify, and Spotipy, resulting in personalized playlists and real-time recommendations tailored to user preferences and listening habits.
- Engineered function-calling framework by defining structured endpoints for OpenAI, enabling advanced interactions with Spotify's API driving improved user experiences.

SafeNet | *Python, TensorFlow, TensorBoard, Google Cloud, Keras, Sklearn* — October 2024 – December 2024

- Achieved real-time hazard detection by training CNN on 2,343-image FloodNet pipeline with 5x data expansion, enabling 96.5% recall, 78.4% F1, and ĩ-second CPU inference for edge deployment in disaster zones.
- Expanded training data 5x by building data pipeline with FloodNet dataset, enabling robust hazard detection through converting pixel-wise labels into grid-based binary classifications for enhanced model performance.
- Optimized model safety by implementing weighted binary cross-entropy loss, resulting in lower false negatives and higher recall for drone landing zone detection across hazards like water, buildings, and vehicles.

TECHNICAL SKILLS

Languages: Java, Python, R, SQL, HTML, CSS, JavaScript, LaTeX, Markdown, TypeScript
Developer Tools: Google Cloud Platform, Azure, AWS, Hugging Face, Docker, Git, Supabase
Libraries/Frameworks: TensorFlow, PyTorch, JUnit, Keras, Pandas, NumPy, Matplotlib, Flask, scikit-learn, React
Certifications: *Advanced Learning Algorithms* Stanford University (Coursera), *Convolutional Nueral Networks* Stanford University (Coursera), *Regression and Classification* Stanford University (Coursera)