

Charles Kotula

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Mission-driven Biomedical Data Science MS student (Dec. 2025 graduation) with strong software development experience, specializing in machine learning and electronic health record (EHR) data. Passionate about building scalable systems that save lives. Seeking an AI/ML Developer role where I can implement innovative solutions for mission-driven teams.

Education

University of Wisconsin – Madison: M.S. in Biomedical Data Science – Dec 2025 (expected) – 3.86 GPA
University of Wisconsin – Madison: B.S. in Computer Science and Neurobiology – May 2024 – 3.86 GPA

Skills

- **Languages:** Python, JavaScript/TypeScript, Java, SQL, Bash
- **Frameworks & Libraries:** PyTorch, TensorFlow, Keras, NumPy, Pandas, React, FastAPI,
- **Tools:** Git/GitHub/GitLab, AWS, Wandb, Docker, Apache, Azure DevOps

Experience

Research Assistant – ICU Data Science Lab – University of Wisconsin – Madison	Spring 2024 – Fall 2025
• Designed and implemented multimodal deep learning pipelines to predict clinical deterioration	
• Built with tools including PyTorch, TensorFlow, Keras, HuggingFace, and Docker	
• First-author publication in JMIR on parameterization methods for unstructured EHR data	
• Worked closely with a team of domain experts to devise and carry out cutting-edge research	
Information Technology Intern – West Bend Mutual Insurance	Summer 2023
• Implemented front-end and back-end solutions using tools including React TS, C#, SQL, and Azure	
• Collaborated with a fast-paced Agile team to move software solutions to production	
Undergraduate Research Assistant – Suzuki Lab – University of Wisconsin – Madison	Fall 2023
• Photographed and analyzed cross sections of spinal cords to investigate motor neuron characteristics in ALS	
• Collaborated on a paper published in Frontiers in Neuroscience	
Undergraduate Research Assistant – Plante Lab – University of Wisconsin – Madison	Spring 2023
• Clean and analyze actigraphy data to compare healthy controls to participants with reported hypersomnia	
• Learned to conduct Pupillography and the Psychomotor Vigilance Test used to assess participant alertness	

Projects

Pathology Foundation Model Fine-Tuning & Evaluation	Fall 2025 – Present
• Fine-tuning a pathology foundation model from Kaggle using PyTorch's distributed training with AWS GPUs	
• Exploring model performance under various conditions to evaluate its strengths and weaknesses	
Muse (muse.charliekotula.com) – AI Music Improvisation App	Summer 2025 – Present
• Developed a TypeScript/Python web app that offers AI-based music improvisation using FastAPI and React	
• Integrated Spotify's Basic Pitch (audio-to-MIDI) and TensorFlow Magenta models for real-time interaction	

Leadership and Volunteering

Co-Founder & President – The Alt Protein Project at UW-Madison	Fall 2023 – Spring 2024
• Organized and mobilized student resources on campus to host social events and build a local community	
• Developed alternative protein curricula to engage students in related research and careers	
• Collaborated with Alt Protein Project chapters worldwide to execute growth strategies	
Volunteer - Perfect Pair UW-Madison	Spring 2022 – Present
• Developed a meaningful relationship with a 96-year-old Danish man through weekly meetings	
• Note: Formal association with Perfect Pair ceased in 2022, but meetings are ongoing	
Varsity Athlete and Team Captain (2020) – Orono Alpine Ski Team	Winters 2013 – 2020
• Led by example in sportsmanship, healthy mindset, and work ethic	