

Charles Kotula

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Biomedical Data Science MS student (Dec. 2025 graduation) with strong software development experience, specializing in Python development, machine learning, and electronic health record (EHR) data. Passionate about building scalable ML/AI systems that improve outcomes and streamline workflows. Seeking a machine learning engineer/data scientist 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) – 3.83 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, Docker, 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 from structured and unstructured EHR data
- Built with tools including PyTorch, TensorFlow, Keras, HuggingFace, and Docker
- First author publication in JMIR on parameterization methods for unstructured EHR data
- Developed multi-modal deep learning models to be used in clinical settings to improve patient outcomes
- 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

Muse (in development) – AI Music Improvisation Web Application 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

Community Facilitator – Omnipotent Health and Fitness 2022 – 2024

- Guided members along weight-loss, muscle gain, and mental health journeys
- Orchestrated community health challenges and host philosophical discussions

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