Aadarsha Gopala Reddy

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EDUCATION

M.S. Computer Science | Washington University in St. Louis, St. Louis, Missouri, USA — August 2024 - May 2026

- **GPA:** 3.67/4.00
- **Thesis:** Toward Vehicle-Agnostic Driving Signatures for Cognitive Impairment Prediction from Naturalistic Driving Data (Advisor: Dr. Alvitta Ottley)
- **Coursework:** Neurobiology of Learning & Memory, Advanced Neuroscience Research Methods, Computational Biology, Computer Vision, Data Manipulation & Management at Scale, Artificial Intelligence for Health, Deep Learning, Systems Security, Software Development, and Quantum Computing.

B.A. Computer Science & Data Analytics | — August 2020 - May 2023
Ohio Wesleyan University, Delaware, Ohio, USA

- **Minor:** Economics
- **GPA:** 3.42/4.0
- **Coursework:** Computer Architecture, Theory of Computation, Algorithms, Big Data, Data Visualization, Data Analytics, Databases, Machine Learning, Artificial Intelligence, Applied Statistics.

RESEARCH EXPERIENCE

Toward Vehicle-Agnostic Driving Signatures for Cognitive Impairment Prediction from Naturalistic Driving Data |
DRIVES Project, Washington University in St. Louis, St. Louis, Missouri, USA
Master's Thesis (Lab PI: Dr. Ganesh Babulal) — August 2025 - May 2026

- Built an end-to-end pipeline processing 26,968 participant-weeks of naturalistic driving data from 304 participants, deriving weekly driving features and integrating demographic covariates for CDR status prediction.
- Compared six CDR prediction models (GRU-DANN, DANN, logistic regression, random forest, XGBoost, MLP) under leave-one-group-out cross-validation; GRU-DANN achieved highest participant-level ROC AUC (0.599) and balanced accuracy (0.584).

Multimodal Prediction of Alzheimer's Disease | Washington University in St. Louis, St. Louis, Missouri, USA
CSE 419A - Introduction to AI for Health — August 2024 - December 2024

- Developed a multimodal approach for early detection of Alzheimer's Disease using the OASIS-1 dataset.
- Implemented deep learning models (CNNs) using TensorFlow/Keras for MRI image analysis and machine learning techniques (XGBoost, Random Forest Regression) for clinical data processing.
- Created a combined classifier leveraging both imaging and clinical data.
- Documented the project in NeurIPS format with comprehensive performance evaluation metrics and visualizations.

Opinion Survey on Artificial Intelligence in the Workplace | Ohio Wesleyan University, Delaware, Ohio, USA
DATA 490 - Independent Study (Mentor: Dr. Nicholas Dietrich) — January 2023 - May 2023

- Designed, fielded, and investigated a survey experiment on the impact of AI on 250 employees within each of four industries using survey data.
- Analyzed data using Tableau dashboards and R to identify trends and common opinions.
- Presented preliminary results on AI's positive impact on employee work at the OWU Spring Student Symposium.

Connect 4 AI | Ohio Wesleyan University, Delaware, Ohio, USA
CS 340 - Artificial Intelligence August 2022 - December 2022

- Developed a Connect 4 game in Java with a single-player mode against an AI opponent and a multiplayer mode for two human players.
- Used the alpha-beta pruning algorithm to create a challenging AI opponent that can test players of all skill levels.

Artificial Intelligence in Modern Board Games - Lost Cities AI | Ohio Wesleyan University, Delaware, Ohio, USA
Summer Science Research Program (Mentor: Dr. Sean McCulloch) May 2022 - July 2022

- Developed a digital version of the Lost Cities card game using Java.
- Implemented an intelligent agent that played the game against a human, winning 13 of 18 games in testing.

INDUSTRY EXPERIENCE

Graduate Assistant with the Taylor Family Center for Student Success | November 2025 - May 2026
Washington University in St. Louis, St. Louis, Missouri, USA

- Led data analysis and storytelling initiatives, tracking program impact through SA Tools, survey design, and social media analytics for evidence-based decision-making.
- Administered the TFCSS website and developed process manuals to establish best practices in data evaluation for staff.

AI Engineer Intern | Crittero, Inc., Remote June 2025 - August 2025

- Engineered a full-stack social media simulation and recommendation system, developing a robust data generation pipeline with persona-based modeling in TypeScript and a foundational recommendation algorithm using TensorFlow/Keras.
- Created an extensive testing infrastructure in Python, featuring a configurable CLI for performance validation and reproducibility, which established critical debugging practices for complex ML systems.
- Gained hands-on experience in the end-to-end ML lifecycle, from synthetic data generation and preprocessing to model training and debugging, while establishing Git workflows for collaborative development.

Graduate Assistant with the Taylor Family Center for Student Success | August 2024 - May 2025
Washington University in St. Louis, St. Louis, Missouri, USA

- Led strategic initiatives for First-Generation, Limited-Income (FLI) student success, planning and executing key community-building programs like “End of Week Unwind” and “First Gen Week”.
- Drove marketing and communication efforts by managing social media channels and co-developing targeted newsletters for alumni and the Forward Families program.
- Pioneered data assessment efforts by tracking and analyzing user interaction on Instagram and newsletters, translating insights into actionable engagement strategies.

Data Analyst Intern | Lab714, Boca Raton, Florida, USA June 2023 - May 2024

- Achieved a 20% reduction in costs for clients through data-driven insights.
- Engineered a software using React and AWS to extract, organize, and analyze data from IoT devices.

Media Center Assistant | Ohio Wesleyan University, Delaware, Ohio, USA September 2021 - May 2023

- Set up and tore down audio-visual equipment, logged equipment movement using Sierra, and created appointments for use of spaces.
- Assisted with providing AV systems and support for events, ensuring successful setup and execution.

PUBLICATIONS

Gopala Reddy, A. (2026). *Toward Vehicle-Agnostic Driving Signatures for Cognitive Impairment Prediction from Naturalistic Driving Data* (Master's thesis, Washington University in St. Louis). McKelvey School of Engineering Graduate Student Theses & Dissertations, 1341. https://openscholarship.wustl.edu/eng_etds/1341/

PRESENTATIONS

An Introduction to Artificial Intelligence for High School Students September 2024
Engineering Workshop by AGES & Science Coach, Washington University in St. Louis

Artificial Intelligence Opinion Survey April 2023
Spring Student Symposium, Ohio Wesleyan University

Artificial Intelligence in Modern Board Games September 2022
Patricia Belt Conrades Summer Science Research Symposium, Ohio Wesleyan University

PROJECTS

Blink Morse Decoder | CodeTillDawn Hackathon, Remote June 2026

- Built an Android accessibility app that translates deliberate eye blinks into Morse code using the SmartSpectra SDK for real-time facial landmark tracking and a debounced blink state machine to filter involuntary micro-blinks.
- Designed a six-blink calibration routine to set personalized timing thresholds, with short/long blinks mapped to Morse dots/dashes, in a glassmorphic Material Design 3 interface that also includes a live bio-vitals dashboard.

MLB Statcast Real-Time Data Pipeline | September 2025 - October 2025
Washington University in St. Louis, St. Louis, Missouri, USA

- Built a lambda-architecture pipeline for MLB Statcast pitch-level data with co-author Eddy Sul for the CSE 5114 (Data Manipulation and Management at Scale) course, using Apache Airflow for historical batch ingestion into Snowflake and a Kafka/Spark Streaming path for live, simulated data.
- Developed a Streamlit dashboard with three views: pitch-by-pitch historical game replay with interactive strike-zone visualization, pitcher analytics (velocity, spin rate, strikeout rate), and team head-to-head matchups.

Red-Blue Visual Auto Defender: Automated Visual Jailbreak Generation and Explainable Defenses | Washington University in St. Louis, St. Louis, Missouri, USA September 2025 - October 2025

- Built an automated red-blue teaming pipeline for vision-language model (VLM) security with teammates Stuart Aldrich and Mohammad Rouie Miab, addressing visual prompt injection (VPI) attacks against VLM-based agents.
- Generated visual jailbreak attack images by overlaying malicious instructions onto benign images and evaluated them against a target VLM (Gemma-3-4b-it) using semantic response analysis.
- Auto-generated deterministic, OCR-based Python defenses for each successful attack, validated with accuracy, precision, and recall metrics in an iterative refinement loop.

Google Calendar Availability Sync | Personal Project, Remote August 2025

- Built a Google Apps Script that runs as a state-based reconciliation pipeline, syncing events from multiple source calendars into a single privacy-preserving "Availability" calendar for scheduling tools.
- Implemented event splitting for multi-day/all-day events, overlap merging across calendars, and metadata-tagged diffing with exponential backoff for API rate limits; powers the Availability page on agreddy.com.

Bayesian Optimization for Material and Product Optimization | Personal Project, Remote July 2025

- Applied Bayesian optimization to three regression problems from the UCI Machine Learning Repository – superconductor critical temperature, concrete compressive strength, and wine quality – tuning Random Forest and XGBoost models with scikit-optimize.
- Applied Bayesian optimization a second time to search the input feature space itself for material and mix compositions that maximize the target property, using the same technique for both model tuning and inverse design.

Datacenter Cooling Optimization using Deep Reinforcement Learning | August 2024 - December 2024
Washington University in St. Louis, St. Louis, Missouri, USA

- Implemented multiple deep reinforcement learning algorithms (DDQN, PPO, SAC) integrated with EnergyPlus simulations to optimize datacenter cooling systems.
- Achieved 35.8% energy efficiency improvement over baseline using DDQN, addressing the underserved small to mid-sized datacenter market.
- Created a comprehensive framework integrating building energy simulation with reinforcement learning for dynamic thermal management.

Interactive Storybook | Washington University in St. Louis, St. Louis, Missouri, USA August 2024 - December 2024

- Developed an interactive storytelling application using Vue.js, Node.js, and MongoDB with AI-powered content generation, enabling users to create branching narrative stories.
- Implemented Google Gemini API and fal.ai integration for dynamic story text and contextual image generation based on user choices.
- Created a visual path tracking interface to help users navigate complex branching narratives and story progression.

Socket.IO Multi-Room Chat Application | August 2024 - December 2024
Washington University in St. Louis, St. Louis, Missouri, USA

- Developed a feature-rich multi-room chat application using Node.js and Socket.IO with password-protected rooms, private messaging, and user moderation capabilities.
- Implemented room management features including creator privileges, user tracking, and persistent nickname storage.
- Created real-time bidirectional event-based communication with responsive design for optimal user experience.

PHP Calendar Application | August 2024 - December 2024
Washington University in St. Louis, St. Louis, Missouri, USA

- Developed a feature-rich personal calendar and event management web application using PHP, MySQL, HTML5, CSS3, and JavaScript.
- Implemented secure user authentication, CSRF protection, SQL injection prevention, and input sanitization.
- Created an interactive calendar interface with comprehensive event management capabilities for creation, editing, and tracking.

Parkinson's Disease AI Diagnosis Software | June 2022 - July 2022
MITxSureStart FutureMakers Create-a-Thon Program, Remote

- Developed AIParkinScan software for Parkinson's diagnosis using neural networks, spectrograms, and the Random Forest algorithm trained on audio and image data.

TEACHING & MENTORSHIP EXPERIENCE

Graduate Teaching Assistant - CSE 5114: Data Manipulation and Management at Scale | January 2026 - May 2026
Washington University in St. Louis, St. Louis, Missouri, USA

- Guided students in implementing data pipelines and real-time processing systems using Python, Snowflake, SQL, Airflow, Spark, Kafka, and Flink.
- Conducted oral midterm exams simulating technical interviews on distributed storage, fault tolerance, and scaling; mentored capstone project groups on data architecture.

HackWashU Databases Workshop | October 2025
Washington University in St. Louis - HackWashU, St. Louis, Missouri, USA

- Designed and facilitated a hands-on databases workshop for beginner-to-intermediate developers, teaching through two complete projects rather than lectures.
- Guided participants through building a normalized SQLite database from the iTunes Search API (schema design, deduplication, CSV export) and a full-stack Supabase Todo app with authentication and Row Level Security.

Computer Science Lab Assistant | Ohio Wesleyan University, Delaware, Ohio, USA January 2022 - May 2023

- Tutored approximately ten students for over 6 hours per week, assisting with homework and exam preparation for introductory, intermediate, and advanced computer science coursework.
- Tested and graded assignments of around 35 students in introductory and intermediate computer science classes.

GRANTS, FELLOWSHIPS, & AWARDS

Bauer Leaders Academy (BLA) Leadership Development Badge, Washington University in St. Louis April 2026
Affiliated School Scholarship, Washington University in St. Louis May 2024
Dean's List, Ohio Wesleyan University May 2023
Mortar Board National College Senior Honor Society Membership, Ohio Wesleyan University April 2023
Golden Bishop Award - WCSA Best New Member, Ohio Wesleyan University April 2023
Dean's List, Ohio Wesleyan University May 2022
Florence Leas Sophomore Prize, Ohio Wesleyan University April 2022
First Place - 32nd Annual Spring Programming Contest, Denison University March 2022
International Baccalaureate Scholarship, Ohio Wesleyan University January 2020
Scholar, Next Genius Scholarship Foundation January 2020

PROFESSIONAL SERVICE & LEADERSHIP

Graduate Student Affairs Advisory Board (GSAAB) | Washington University in St. Louis, St. Louis, Missouri, USA
Member August 2025 - May 2026

- Provided strategic feedback to the Vice Chancellor for Student Affairs on critical issues impacting graduate student life and experience.
- Engaged in critical dialogue with senior university leaders, including the Dean of Students, to advocate for improvements to the graduate student experience across all academic programs.
- Contributed to monthly discussions on student affairs policies and initiatives to enhance support systems and resources for the graduate student community.

Center for Career Engagement (CCE) Student Advisory Board |
Washington University in St. Louis, St. Louis, Missouri, USA
Graduate Student Member August 2025 - May 2026

- Guided the strategic direction of the Center for Career Engagement to ensure services align with diverse needs of graduate students from all academic backgrounds and career interests.
- Provided insights on career engagement programs, workshops, and resources to enhance accessibility and effectiveness for the WashU graduate student community.
- Built community around career development initiatives and fostered collaboration between the CCE and graduate student body.

Umang (Indian Graduate Student Association) | Washington University in St. Louis, St. Louis, Missouri, USA

Treasurer June 2025 - October 2025

- Managed club finances, including budgeting, expense tracking, and fundraising to ensure sustainable operations and successful event planning.
- Collaborated with members to organize cultural events and festivals, promoting cultural awareness and fostering community among Indian graduate students.

Graduate and Professional Student Council (GPSC) | Washington University in St. Louis, St. Louis, Missouri, USA

Vice President of the Graduate-Professional Council (GPC) Chamber May 2025 - May 2026

- Managed the Council's unified Microsoft Teams workspace and website, establishing centralized communication hubs and maintaining up-to-date information on events, governance, and resources.
- Built and maintained committee membership rosters using ranked-choice preference allocation to balance workload and ensure efficient cross-committee coordination.
- Oversaw information architecture for the Council's documentation repository.
- Represented the graduate student body to university leadership and supported the GPC President in advancing strategic council priorities.
- Chaired the Constitution Committee (August 2025 - February 2026), coordinating stakeholder input to draft and ratify GPSC governing documents aligned with the Council's mission and university policies.

HackWashU | Washington University in St. Louis, St. Louis, Missouri, USA

Treasurer December 2024 - July 2025

- Managed the club's finances, including budgeting and expense tracking, to ensure sustainable operations and successful event planning.
- Coordinated fundraising efforts and sponsorship outreach to support club activities and initiatives.
- Collaborated with club members to organize hackathons and coding events, fostering a culture of innovation and teamwork among participants.

Hindu Student Council | Ohio Wesleyan University, Delaware, Ohio, USA

Treasurer and Founding Member January 2023 - May 2023

- Co-established the council and organized events promoting Hindu cultural heritage, fostering youth leadership skills, and creating volunteer opportunities.
- Managed organizational finances, developing and submitting formal budget requests to secure funding for council activities and events.

Wesleyan Council on Student Affairs (WCSA) | Ohio Wesleyan University, Delaware, Ohio, USA

Budget Committee Senator August 2022 - May 2023

- Actively contributed to the Budget Committee's process of proposing, discussing, and deciding on senate bills, while overseeing the allocation of an annual budget exceeding $350,000 to campus individuals and organizations.
- Recipient of the Golden Bishop Award for WCSA Best New Member, recognized for making the greatest overall contribution to WCSA's mission through drive, high achievement on the Budget Committee, and providing unique, valuable perspectives.

The Neurds (Neuroscience Club) | Ohio Wesleyan University, Delaware, Ohio, USA

Member August 2022 - May 2023

- Presented on AI at Brain Fair 2023 during Brain Awareness Week, bridging neuroscience and technology.
- Contributed to the planning and marketing of club events, directly supporting educational enrichment and networking opportunities for members.
- Participated in initiatives promoting neuroscience awareness and community service, aiming to enhance members' intellectual and career development pathways.

Campus Programming Board | Ohio Wesleyan University, Delaware, Ohio, USA

Vice President of Finance January 2022 - December 2022

- Successfully planned, created, and implemented budgets totaling over $86,000 for campus events.
- Initiated and led revamp of organization's governing documents, implementing efficient practices.
- Negotiated an additional $10,000 per year with the Wesleyan Council on Student Affairs.

Mathematics, Computer Science & Data Analytics Student Board | Ohio Wesleyan University, Delaware, Ohio, USA

Member August 2021 - May 2023

- Analyzed faculty evaluations to provide actionable insights for departmental improvements.
- Gathered and synthesized student feedback on course offerings to recommend enhancements to the department.

TECHNICAL SKILLS & AFFILIATIONS

Programming Languages: Java, C++, Python, R, JavaScript/TypeScript, PHP, C#, SQL, Rust.

Frameworks & Libraries: TensorFlow, PyTorch, Scikit-learn, Keras, NumPy, Pandas, Matplotlib, Seaborn, Node.js, Express.js, Vue.js, React, Socket.IO, Gemini API, OpenAI API, fal.ai.

Tools & Technologies: LaTeX, Git, Tableau, Power BI, MySQL, AWS, MongoDB, Snowflake, Apache Airflow, Spark, Kafka, Flink, Microsoft 365, Google Workspace.

Core Competencies: Analytical Skills, Problem Solving, Critical Thinking, Communication, Team Collaboration, Leadership, Adaptability, Project Management.

Languages: Proficient in English, Kannada, Telugu; Conversational in Hindi.

REFERENCES

Available upon request.