Daphney P. Talekar

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EDUCATION

Vanderbilt University Nashville, TN
B.S. Computer Science, **Neuroscience** *Expected May 2026*
Honors: Crescere Aude Merit Scholarship (Vanderbilt), Dean's List, Questbridge Scholar GPA: 3.54
Coursework: Intermediate Software Design, Data Structures & Algorithms, Programming Languages, Intro to Generative Artificial Intelligence, CS Undergraduate Research, Linear Algebra, Calculus I/II/III, Cornell Tech - Machine Learning Foundations Certificate

WORK EXPERIENCE

Relativity Remote
AI Intern *August 2024 – Present*
- Quantified bias in frontier machine learning models for bias in legal-tech generative AI softwares; utilized sentiment analysis, classification, and bias techniques (Amazon General Fairness Metric) to determine LLM bias in legal settings

East Carolina Brody School of Medicine Remote
Computational Medicine Research Intern *May 2024 – Present*
- Developed and implemented a discrete-event simulation model using SimPy / Python to optimize the allocation of emergency department (ED) resources, focusing on optimal bed allocation strategies (low/high acuity) to minimize patient wait times and maximize ED throughput to provide actionable insights for hospital operations
- Conducted extensive analysis to determine the impact of different bed allocation strategies on ED throughput and patient wait times for East Carolina Medical Centers / ECU Health Satellite locations across 29 counties in North Carolina

Vanderbilt University Robotics and Autonomous Systems Laboratory Nashville, TN
Large Language Model & AI Research Intern *August 2024 – Present*
- Developed proof-of-concept prototype conversational-AI speech generation software on low-fidelity simulation manikins
- Implemented a knowledge graph and vector database RAG workflow in AI software; backend iterative design of LLM agent

Biomechanics & Computer Vision Research Intern *August 2023 – Present*
- Performed computer vision and biomechanics research, utilizing machine learning and augmented/virtual reality systems to analyze digital imaging and visualize high-dimensional data, engineering joint-tracking sensor for 440+ student athletes
- Developed implementation to calculate body segment inertial parameters (center of mass, mass of inertia tensor, etc.) using MATLAB and used Microsoft Azure and Unreal Engine to capture human body scans for joint segmentation with MeshLab

The Johns Hopkins Applied Physics Laboratory Laurel, MD
Software R&D Intern *May 2023 – August 2023*
- Performed NIH-funded research with a 7-person cohort on BossDB, a volumetric open-source repository for 3-D / 4-D brain data, mapping and visualizing neuroimaging datasets from fMRI and connectomes across 42 research projects
- Designed BossDB RESTful API using Node.js and React.js, integrated with a MySQL database, resulting in a 30% increase in data processing speed and a 25% reduction in API response time for data querying and handling functions
- Created GUI and web application for 3-D multimodal atlas using React, HTML/CSS and Three.Js - BossDB C-MAP website

LEADERSHIP / PROFESSIONAL DEVELOPMENT

Cornell Tech – *Artificial Intelligence/Machine Learning Fellow* *May 2024 – Present*
- Selected from 1500+ applicants for the Break Through Tech AI Program at Cornell Tech
- Participant in a 12-month long program including Machine Learning coursework with Cornell faculty, experiential learning experiences, and mentorship from industry professionals

Google – *Computer Science Research Mentorship Program (CSMRP) 2023B Cohort* *August 2023–December 2023*
- Accepted to a selective (1000+ applicants) research mentorship program that matches students with researchers at Google to support their pursuits of research pathways through career mentorship, peer-to-peer networking, and building awareness

POSTERS & PRESENTATIONS

Connectomics Multimodal Atlas Project – *Presented at The Johns Hopkins Applied Physics Laboratory Research Fair 2023*
Looking Forward with BossDB: Modern Metadata Solutions, Dynamic Graph Querying, and Streamlined Ingest for Volumetric and Connectomic Datasets – *Presented at Society for Neuroscience Conference 2023*

TECHNICAL SKILLS AND CERTIFICATES

Languages: Java, Python, C++, JavaScript, TypeScript, HTML/CSS
Frameworks/Utilities: ReactJS/NodeJS, TensorFlow, Keras, Pandas, Unreal Engine, Unity, Git, MATLAB, LangChain, FASTAPI
Additional Memberships: Rewriting the Code, Kappa Theta Pi, Vanderbilt Math Club, Girls Who Code, AnitaBorg