Ainesh Chatterjee

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Education

University of Maryland (College Park)

Dual BS in Computer Science (Machine Learning) and Mathematics

December 2025 | GPA: 3.384

University + CS Honors, Dean's List

- **AI/ML**: Graduate NLP; Computer Vision; HRI/Embodied AI; Intro to: Multimodal DL, AI, ML, Data Science
- **Math**: Calculus III; Advanced Linear Algebra; Differential Equations; Abstract Algebra; Transform Methods; Numerical Analysis; Financial Models
- **CS**: Algorithms; Data Structures; Computer Systems; OOP; Programming Languages; Quantum Computing
- **Stat**: Applied Prob&Stat; Probability Theory

Publications

- *Ipelets for the Convex Polygonal Geometry*, published at SoCG 2024, 2024
- *AgreeMate: Teaching LLMs to Haggle*, published at arXiv, 2024

Projects

Vizier | Team Lead/ML Developer

- AI newsletter MVP (Bitcamp 2025) using test-time MoE + document-expert LLMs for improved retrieval

CoronaSafe | Team Lead/Developer

- Python/Flutter risk assessment using time-weighted foot-traffic + density analytics
- Congressional App Challenge Winner (2021 MD-08); Guest Speaker, USPTO APPLY Yourself (2022)

Skills

- **Languages & Platforms**: Python, C/C++, Java, Linux, Docker, Git, CI/CD, FastAPI, React, Flask, PostgreSQL
- **AI/Agents**: Transformers, Agentic LLMs, DSPy:GEPA, MCP, Claude Code SDK, Context Engineering, GraphRAG, PyTorch, LiteLLM
- **Cloud & Data**: AWS (EC2, Fargate, Lambda, S3, Bedrock, SageMaker), Neo4j, Pandas, NumPy, Dask, Selenium, BeautifulSoup
- **Awards**: Congressional App Challenge Winner, Dean's Scholarship, Eagle Scout

Experience

Tilli Software

AI Engineering Intern

Edge:XDEX:Agent

July 2025 - Present | Remote

- **Built** end-to-end MVP of Tilli Agent using Pocketflow + Google Agent ADK for utility customer web portals
- **Designed** Scrape2MCP for structured extraction from arbitrary sites; generated template-derived MCP servers (Claude Code SDK)
- **Optimized** agent deployment stack on AWS Bedrock Agentcore, ***increasing cache-hit rate; lowering p50 latency and token cost***
- **Leading** product launch effort to ***serve 150k+ users with planned rollout to ~3M***

Johns Hopkins University Applied Physics Laboratory

Computer Science Intern - Interim Clearance

Force Projection Sector: Ocean Systems & Engineering Group

May 2024 - Aug 2024 | Laurel, MD

- **Developed** enhanced GAIfO agents outperforming baselines over long horizons
- **Revamped** GitLab CI pipelines ***≈25% faster and more secure***
- **Optimized** shared Docker image across repos ***≈50% faster builds; ≈40% lower memory***
- **Enhanced** SCRIMMAGE simulation with added complexity and expert controllers

University of Maryland MIND Lab

Data Science/ML Research Intern

Breathing Analysis Project

October 2023 - December 2024 | College Park, MD

- **Created** visualization dashboard + data structures for large-scale breath analysis
- **Optimized** dataset loading with Dask + multithreading ***400%+ throughput improvement***
- **Implemented** supervised methods for improved breath segmentation