

Aarush Kandukoori

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EDUCATION

Carnegie Mellon University

Pittsburgh, PA

B.S. Computer Science | Statistics & Machine Learning

August 2025 – May 2028

Relevant Coursework: Principles of Imperative Computation, Principles of Functional Programming, Fundamentals of Programming & Computer Science, Art & Machine Learning, Calculus in 3-Dimensions, Methods of Statistics & Data, Intro to Probability Theory

EXPERIENCE

Harvard Medical School & Brigham Women's Hospital, Ann Romney Center of Neurology

Boston, MA

Machine Learning & Data Analytics Intern

July 2024 – August 2024

- Developed a Python-based pipeline to automate RNA/DNA processing tasks and integrate flow cytometry outputs for downstream analysis, reducing manual processing time by 70%
- Applied machine learning models to identify key biomarkers in dendritic and T cell data related to Multiple Sclerosis, improving classification by 20% over base statistical models.

Stanford University, Dr. Kevin Alexander Lab

Stanford, CA

Data Analytics & Research Intern

June 2024 – August 2024

- Engineered FibroQuant, a biomedical imaging analysis tool in Java and ImageJ macro scripting to quantify & process large-scale datasets (>300 samples), achieving 2x faster analysis
- Designed algorithms for pattern recognition and fibrosis classification using statistical thresholds ($p < .01$), improving diagnostic throughput by 35%
- Authored Research [Poster](#) & [Paper](#).

University of Maryland MindLab

College Park, MD

Software Engineering & Data Science Intern

June 2022 – August 2023

- Designed and deployed a machine learning pipeline using Python, Scikit-learn, and Pandas to classify user states from multimodal respiratory and speech data that was formally published in a research paper
- Built custom data processing scripts to analyze >450 breathing segments; automated labeling process and reduced human annotation time by 99%
- Wrote & published blogs on [Diversity and Inclusion](#) & [Algorithmic Bias](#).

PROJECTS

BUMP: A Novel Atropine Pump for patients with Crashing Bradycardia via Continuous BPM Monitoring (Patent Pending)

University of Maryland, Science Fair – [Poster](#); USPTO provisional #63/686,176

Designed and prototyped a wearable atropine pump using Arduino, peristaltic pump, and continuous BPM monitoring to treat patients with crashing bradycardia. Validated accuracy through expected vs. actual dosing trials, achieving 92.77% delivery precision.

Comparative Analysis of Digital Tools and Traditional Teaching Methods in Educational Effectiveness

arXiv – [Research Paper](#)

Led a controlled study of 30 elementary students to evaluate math skill gains from interactive digital platforms (e.g., Khan Academy) versus worksheets. Results showed 24.2% average score improvement with digital tools compared to 8.3% with traditional methods, highlighting technology's potential to enhance classroom learning outcomes.

SmartPass — A Unique Hallway Management tool for Teachers

Brook Codes Hackathon - [Devpost](#)

Created a digital hall pass system to replace paper slips, enabling teachers to manage student movement in real-time. Built features for time-limited passes, live hallway occupancy tracking, and misuse prevention. Won recognition at Brook Codes Hackathon for improving school safety and administrative efficiency through technology.

SKILLS

- Programming Languages: Python, Java, C++, R, TypeScript, JavaScript, HTML, CSS
- Development Tools & Environments: Git/GitHub, Jupyter Notebook, VS Code, AWS, Microsoft Excel
- Statistical & Data Science Tools: Scikit-learn, NumPy, Pandas, Matplotlib, R, Excel (VBA), Prism, Tableau
- Modeling Skills: Predictive Modeling, Regression Analysis, Data Visualization, Pattern Recognition, Probability Distributions
- Machine Learning & AI: Machine Learning, Deep Learning, Reinforcement Learning, Natural Language Processing, Computer Vision, Data Mining, Algorithm Design