

Jesse Annan

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RESEARCH OBJECTIVE

PhD student in Computer Science with active research in multi-agent trajectory prediction — probabilistic spatial-temporal modeling for predicting agent behavior in crowded, dynamic environments with broad applications in autonomous systems, simulation, and sports analytics.

EDUCATION

Georgia State University — Atlanta, GA

Expected May 2030

PhD in Computer Science | MS in Mathematics — GPA 3.78/4.00

ACTIVE RESEARCH

Multi-Agent Trajectory Prediction

In Progress

PyTorch, Deep Learning, Python

- Developing a probabilistic model predicting $K = 20$ diverse future trajectories per agent in crowded scenes, conditioned on observed motion history and up to 20 neighboring agents
- Benchmarked on ETH/UCY pedestrian datasets (minADE / minFDE); 8-step observation window, 12-step prediction horizon

PROJECTS

xFPL — AI-Powered Fantasy Premier League System [GitHub] [Demo]

Dec 2025

FastAPI, Next.js, PostgreSQL, Supabase, Python

- Solo-built full-stack FPL management system with squad construction (£100M budget), captain logic, head-to-head leagues, and live gameweek simulation; AI transfer recommender scores candidates by recent form, fixture difficulty rating, and points-per-million value
- Awarded **2nd Best Project** (Graduate Category) in Database Systems, Fall 2025

Brain Tumor Detection Using RetinaNet [GitHub]

Jul 2024

Python, PyTorch, Detectron2, RetinaNet

- Trained RetinaNet (ResNet-50 + FPN) on 1,229 brain MRI scans via Detectron2, achieving **94% mAP** (IoU 0.5) and 91% mAP (IoU 0.75) across diverse tumor sizes and anatomical locations

US Airline Sentiment Analysis [GitHub]

Jul 2023

Python, Scikit-Learn, TF-IDF

- Logistic regression NLP classifier on 14,640 tweets; 78.9% accuracy, 84% precision on negatives; TF-IDF + n-gram preprocessing expanded feature space from 8.5K to 61K dimensions

TEACHING EXPERIENCE

Georgia State University — Atlanta, GA

Graduate Teaching Assistant — Fundamentals of Data Science

Jan 2026 – May 2026

- Graded coursework for 55 students and delivered detailed, individualized written feedback

Graduate Teaching Assistant — System Level Programming

Aug 2025 – Dec 2025

- Led 4 weekly lab sessions reinforcing low-level programming concepts for approximately 100 students
- Graded assignments and provided individualized feedback across the full student cohort

Graduate Teaching Assistant — Theory Foundations of Computer Science

Jan 2025 – May 2025

- Evaluated assignments for 70+ students, providing personalized feedback and guidance
- Led weekly lab sessions to support students in applying and reinforcing concepts taught during lectures

Graduate Teaching Assistant — Foundations of Data Science

Aug 2024 – Dec 2024

- Evaluated data science assignments for 55+ students with detailed, individualized feedback
- Led weekly office hours mentoring students in Python and data visualization — homework average rose from 88.9% to 96.7%

Graduate Lab Assistant — Elementary Statistics

Aug 2022 – Jul 2024

- Visualized statistical concepts to help 200+ students build intuition for key ideas
- Documented common challenges and effective teaching strategies, contributing to an 8% improvement in student performance

TECHNICAL SKILLS

Programming: Python, PyTorch, Scikit-Learn, PostgreSQL, Power BI, \LaTeX

Machine Learning: Deep Learning, Generative Models, Object Detection, Trajectory Prediction

AWARDS & HONORS

- **Brains & Behavior Fellow** — GSU Neuroscience Institute (2025)
- **2nd Best Project**, Graduate Category — xFPL, DB Systems (2025)
- **2nd Place**, CS Demo Competition — LingoScape, among 28 teams (2024)
- **Top Graduate Lab Assistant** — selected among 15 peers for outstanding mentorship, Commons Math Lab
- **Willey M. Suttle Math Award** — departmental award for academic excellence in mathematics