Bryan Huang

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Education

University of Massachusetts Amherst — Amherst, MA

B.S. in Computer Science (GPA: 3.89/4.00); Dean's List, Chancellor's Award Scholarship ($72k) — *Expected May 2028*

- Relevant Coursework: Data Structures, Discrete Mathematics, Probability, Linear Algebra, Multivariable Calculus

Polytech High School — Woodside, DE

High School Diploma in Engineering Design Technology (GPA: 4.00/4.00 UW) — *Aug. 2021 – June 2025*

- Valedictorian; Secretary of Education Scholar; Class President (2022–2025), led 10+ school-wide events.

Experience

UMass Amherst – DREAM Lab — Amherst, MA

Artificial Intelligence Research Assistant — *Sep. 2026 – Present*

- Investigate memory-aware GPU scheduling in Kalypso, a system for executing pipelined LLM filters and joins.
- Design a Python workload harness that independently varies filter selectivity and join fanout to compare adaptive and fixed GPU memory allocations using throughput, TTFT, and ITL.
- Authored a technical proposal exploring adaptive block management and KV-cache compression to balance GPU memory usage, cache reuse, and recomputation overhead across pipelined LLM operators.

UMass Student Government Association — Amherst, MA

SGA Senator – Academic Oversight, Ways & Means — *Oct. 2025 – May 2026*

- Initiated and co-led the UMass AI Taskforce on Undergraduate Student AI Literacy.
- Deliberated $4.2M Student Activities Trust Fund allocations, reviewed ∼75 RSO budgets, and evaluated funding guidelines across 400+ student organizations.
- Assessed Student Government funding guidelines and proposed updated requirements and operational recommendations.

University of Massachusetts Amherst Admissions — Sunderland, MA

Admissions Student Staff — *Oct. 2026 – Present*

- Analyze transcripts and re-calculate the GPA of prospective UMass students using MBHE standards.

Projects

Neural Network from Scratch (MNIST) | *Python, NumPy, Matplotlib* | GitHub — 2026

- Implemented a 784-16-16-10 multilayer perceptron (∼13K parameters) using NumPy.
- Built a binary IDX parser with Python's struct module to unpack raw MNIST bytes into normalized arrays.
- Derived backpropagation gradients by hand and implemented SGD, achieving ∼94.2% test accuracy.
- Diagnosed training bottlenecks by comparing full-batch and stochastic gradient descent, identifying update frequency as the primary factor in achieving fast, stable convergence.

End-to-End Tabular Classification Pipeline (Titanic) | *Python, Scikit-Learn, Pandas, NumPy* | GitHub — 2026

- Built a Scikit-Learn classification pipeline with fold-isolated preprocessing to prevent data leakage.
- Implemented custom transformers for title, family, and cabin features, with conditional age imputation.
- Compared Logistic Regression, Random Forest, and Gradient Boosting using GridSearchCV, achieving 0.894 CV ROC-AUC.

Deck Arch Truss Bridge Design & Optimization | *SOLIDWORKS, AutoCAD, FEA* — 2023 – 2025

- Won 1st place at the Delaware Bridge Design Competition; led bridge design, FEA simulation, and fabrication.
- Calibrated finite element models against physical tests using empirical scaling factors (2.52–3.02).
- Drafted 2D technical drawings in AutoCAD and manufactured steam-bent arches eliminating joint weak points.

Technical Skills & Certifications

Languages: Python, Java, C, AutoHotkey (AHK)

Libraries: NumPy, Pandas, Matplotlib, Scikit-Learn

Technical Tools: Git, Linux/Unix, Shell/Bash, SOLIDWORKS, AutoCAD, Fusion 360, Revit, Onshape

Certifications: FAA Part 107 Commercial Drone Remote Pilot, Autodesk AutoCAD Certified, Autodesk Revit Certified

Interests: Weightlifting / Calisthenics, Running, Reading