

Henry Yu

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EDUCATION

Bachelor of Science - Computer Science

Indiana University, School of Informatics and Computing

Aug 2023 - May 2027

Bloomington, IN

High School

Memphis University School - Magna Cum Laude

Aug 2019 - May 2023

Memphis, TN

RELEVANT COURSES

Data Structures and Algorithms | Data Modeling and Inference | Discrete Mathematics | Linear Algebra

SKILLS

Languages Python | Java | C/C++ | OpenQASM

Developer Tools Git | Fork | Docker | Kubernetes | VS Code | Tableau | Qiskit

Libraries Pandas | NumPy | Matplotlib | Seaborn | Scikit-learn | Keras | Pytorch

EXPERIENCE

Quantum Computing Research

Sep 2023 -

Indiana University

Bloomington, IN

- Conducted research focusing on assessing correlations between qubit features and error probabilities and the affect of noise on quantum ML models.
- Leveraged sophisticated data analysis methodologies, such as regression modeling and covariance visualizations, and developed advanced technical solutions, including a quantum classifier and artificial noise models.

Private CS and Math Tutor

Sep 2023 - Dec 2023

Indiana University

Bloomington, IN

- Provided small custom study plans for customized learning experiences for 3 total Java, Python, and linear algebra students.
- Improved code proficiency to the point where self-dependency was achieved.
- Improved grades by an average of a whole letter grade above class average by end of semester.

NOTABLE PROJECTS

Influence of Qubit Features on Error Rates

Sep 2023 - Dec 2023

Undergraduate Researcher | Qiskit, Matplotlib, Scikit-learn

Bloomington, IN

- Conducted time series analysis and regression modeling on 7-qubit and 127-qubit quantum systems using IBM's Qiskit SDK.
- Analyzed qubit features such as decoherence time, gate errors, and readout errors to predict error probabilities, achieving an average R-squared score of 0.105 for 127-qubit system predictions.
- Nominated as one of the top posters in end-of-semester event for professionalism and deep knowledge of topics researched.

Breaking the Cycle: Reducing Recidivism in Iowa State Prisons

Sep 2022 - Apr 2023

Pandas, Matplotlib, Keras, LaTeX

Memphis, TN

- Analyzed probability of prisoners re-offending by developing a feedforward neural network.
- Tested FNN using AUC-ROC score, SHAP analysis, multiple regressions, and Monte Carlo simulations.
- Discovered that Class A felons, on average, cost the prison approximately \$170,000.
- Placed 2nd nationwide with a publication; \$15,000 team reward.

Riding into the Future: Evaluating E-Bikes

Apr 2023

Pandas, Matplotlib, Keras, LaTeX

Memphis, TN

- Conducted long-term impact of E-bike usage by determining popularity of e-bikes using sentiment analysis on Twitter tweets in the past year.
- Implemented regression analysis and Monte Carlo simulations to provide a range of possible sales.
- Found that group of 10,000 e-bike users reduce 1190 CO₂ emissions per year, saving government around \$220,000 per year.
- Acknowledged as one of the top 3% of teams in technical computing.

PUBLICATIONS

- **Henry Yu**, Lou Zhou, Amar Kanakamedala, Jeffrey Liu, and Evan Wu, "Breaking the Cycle: Reducing Recidivism in Iowa State Prisons," 2023.2 ARCH, Education and Research Section of the Society of Actuaries.