Rainne Busque

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Education

Arizona State University Tempe, AZ

Bachelor of Science in Data Science (Mathematics Track) *Aug. 2025 – May 2029*

- Dean's Scholarship Recipient
- Relevant Coursework: Linear Algebra, Calculus II (MAT266), Data Structures, Introduction to Machine Learning
- Organizations: Devil Data Club, Google Developer Club, Philippine American Student Association (Culture Chair)

Experience

Undergraduate Research Assistant May 2026 – Jul. 2026

ASU OURS — Dr. Jimmie Adriazola (NSF ASCEND Fellow) *Remote*

- Contributed to *Learning Mathematics Through the Machine*, a research project using statistical learning to rediscover classical mathematical formulas from numerical data
- Implemented and analyzed Sparse Identification of Nonlinear Dynamics (SINDy) and sparse regression pipelines in Python and MATLAB
- Applied symbolic regression and numerical methods including Euler's method to recover differential equation structure from data
- Developed understanding of linear algebra foundations underpinning modern ML algorithms through active research application

Hackathon Participant — NutriWell Aug. 2025

Project Humanities Hackathon

- Built a web app connecting food-insecure individuals to nearby donation centers and donors as part of a team
- Focused on accessible UX design and real-world social impact; developed under time-constrained hackathon conditions

DataFest Competitor Spring 2026

ASU Devil Data Club

- Analyzed a complex healthcare infrastructure dataset under time pressure as part of a competitive data analytics team
- Performed Exploratory Data Analysis (EDA) to uncover hidden patterns within the dataset.

Member Services Representative 2026 – Present

Planet Fitness *Tempe, AZ*

- Delivered consistent member service while managing time effectively alongside a full academic and research schedule

Projects

Philippine Housing Prices Prediction | *Python, scikit-learn, pandas, NumPy* 2026

- Built a supervised Decision Tree regression model to predict residential housing prices in the Philippines using 1,500 real estate listings
- Performed data cleaning, log transformation to address price skewness, and exploratory analysis to identify key price drivers
- Evaluated model using Mean Absolute Error; identified location encoding as a key missing feature and documented findings publicly on Reddit

Computer Vision Pipeline | *Python, YOLOv8, OpenCV* 2025

- Built an object detection pipeline using YOLOv8 for real-time inference; implemented custom preprocessing with OpenCV

Terminal Spinning Donut Renderer | *Python, NumPy* 2025

- Re-implemented the classic ASCII donut renderer using NumPy vectorized math for 3D rotation projection in the terminal

Technical Skills

Languages: Python, Java, JavaScript, LaTeX
ML & Data Science: scikit-learn, pandas, NumPy, Matplotlib, Plotly, YOLOv8, OpenCV
Methods: SINDy, Sparse Regression, Symbolic Regression, Supervised Learning, Decision Trees, Euler's Method
Tools & Platforms: Git/GitHub, Jupyter Notebook, VS Code, Vim, tmux, Arduino, Linux/macOS

Leadership & Activities

Culture Chair 2026 – 2027

Philippine American Student Association (PASA), Arizona State University

- Elected to lead cultural programming and community engagement initiatives for the organization
- Organized events celebrating Filipino-American heritage and fostering a sense of belonging on campus