

## Joey Park (she/her)

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### EDUCATION

Thomas Jefferson High School for Science and Technology (Senior, Aug 2022 – Current), Alexandria, VA

- Expected Graduation: June 2026 / GPA: 4.15 (as of October 2025)
- Coursework: AP Biology, DNA Science HN 1&2, Marine Biology HN, AP Statistics, AP Calculus AB/BC, Oceanography Research (TJHSST Senior Advanced Science Requirement), Physics HN, Chemistry HN, Computer Science HN, AP Micro & Macro Economics, AP Psychology, AP US History, AP Government, AP English, AP Drawing
- Independent Course Work: Data Structures & Algorithms, Data Analysis in Python, Machine Learning in Python

### ACADEMIC ACHIEVEMENT

- SAT: 1550 (Math: 790, Reading: 760)
- AP Scholar with Distinction (Average: 4.5); 11 AP courses by graduation
- National Merit Semifinalist (PSAT 1500, 2024)
- College Board National Recognition Program Scholar (2024)

### RESEARCH & PROJECT

#### ***Modeling Chaotic Dynamics in Ecological data using Takens' Delay Embeddings & Gaussian Processing***

- Conducted research under a professor from William & Mary and will present results at the SUMS conference hosted by James Madison University on November 1<sup>st</sup> 2025.
- Applied delay embeddings & Gaussian Process Regression to reconstruct chaotic dynamics (Logistic & Hénon maps), demonstrating Takens' theorem & forecasting from sparse data, with aims for ecological time series modeling.

#### ***A Statistical Analysis of Asian and Non-Hispanic White Populations on Gastric Cancer***

- Conducted a statistical analysis to examine genetic disparities in gastric cancer between Asian and Non-Hispanic White populations and performed a two-proportion Z-test to compare the ratio of gene mutations in Python.
- Found that Asian patients had a higher frequency of mutations in the APC and PRKAA1 genes compared to the White group, suggesting potential genetic risk factors for gastric cancer.

#### ***Machine Learning-Based Cancer Type Prediction Using TCGA Data***

- Preprocessed and analyzed large-scale TCGA genomic datasets, transforming gene mutation data into a structured format for classification; developed XGBoost and Neural Network models in TensorFlow for cancer type prediction.
  - Achieved 81% accuracy with the Neural Network model, outperforming the XGBoost model.
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### LEADERSHIP & COMMUNITY ENGAGEMENT

#### ***Korean Language Instructor (September 2022 – Present)***

- Teach younger students Korean; earned President's Volunteer Service Award (Gold 2023, Silver 2024)
- Junior Leadership Award (Gold 2024, 2025) for leadership and community contribution.

#### ***Taekwondo Instructor, TigerEye Taekwondo (Sept 2024 – Present)***

- Lead classes in fundamentals, discipline, and confidence building.
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### EXTRACURRICULAR ACTIVITIES

#### ***National Art Honor Society – Art Officer***

- Lead creative projects and mentor peers in artistic techniques.
- Preparing an art portfolio after 10+ years of experience in art.

#### ***Member, Bioinformatics Society and Coding Lady Colonials***

- Explored the field of bioinformatics, gaining an understanding of industry applications.
- Independently built various machine learning models in Python beyond classroom instruction.

#### ***Member, Biotechnology Club and Game Developers Association***

- Engage in discussions and projects related to advancements in biotechnology and the gaming industry
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### TECHNICAL SKILLS

- Python, Java, SQL, Excel, PowerPoint, Jupyter Notebook, Google Colab, Anaconda
- Statistical Analysis (inference, t-test, z-test, chi-square, ANOVA), Machine Learning (Scikit-Learn, TensorFlow)

### HOBBIES & INTEREST

- Exploring national parks and wildlife and fostering a deep appreciation for nature, wildlife conservation, and understanding diverse ways of life