

KIRAN SHAY

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Baltimore, MD 21218
2914 N. Calvert St.

EDUCATION

Johns Hopkins University

Bachelor of Science in Computer Science and Neuroscience

Minors: Applied Mathematics & Statistics, Business

Baltimore, MD

Aug 2023 - May 2027 (expected)

- Cumulative GPA: 3.92
- Relevant Coursework: Data Structures, Algorithms, Machine Learning, Probability & Statistics, Linear Algebra

EXPERIENCE

[Probabilistic Lineup Optimization for Baseball](#)

Research Lead | Quantitative Modeling | Simulation | Conditional Probability

Baltimore, MD

Dec 2024 - Present

- Modeled optimal batting order strategies using conditional probability matrices and stochastic simulations
- Developed BRP (Baserunner-Dependent Net Run Production), a custom metric for expected run contribution
- Applied Markov-style transitions and expectation-based optimization to maximize lineup efficiency
- Simulated and evaluated thousands of lineup permutations using Python and user-defined constraints
- Received 2025 Johns Hopkins Whiting School of Engineering Design Day Digital Vanguard Award

[TremorML: Time-Series Classification of Neurological Disorders](#)

Research Lead | Machine Learning | Signal Processing | Time-Series Modeling

Baltimore, MD

May 2025 - Present

- Developed an advanced machine learning pipeline for differentiating tremor types (e.g., Parkinsonian vs. Essential Tremor) from wearable time-series data
- Applied dimensionality reduction and tree-based feature selection to improve model interpretability and performance
- Implemented and evaluated a diverse suite of models, including XGBoost, Random Forests, and deep neural networks
- Achieved significant performance gains using class balancing techniques (e.g., SMOTE)

[Delineo: Infectious Disease Simulation Research](#)

Simulation Team Engineer | Johns Hopkins University Dept. of Computer Science

Baltimore, MD

May 2025 - Present

- Contributed to the core simulation engine modeling stochastic disease spread across communities
- Improved computational efficiency by profiling code and optimizing NumPy-based pipelines
- Refined geographic modeling by smoothing convenient zones to improve model continuity and accuracy

[Affordable Tutoring Solutions Inc.](#)

Co-Founder & Chief Technology Officer | Educational Accessibility

Melbourne, FL

June 2023 - Present

- Designed and deployed full-stack web infrastructure to support scalable tutoring operations, including automated scheduling, curriculum delivery, and performance tracking
- Led development of personalized, data-informed academic curricula aligned with SAT/ACT standards
- Championed equitable access to education through a flexible pricing model, serving students from underserved communities

LEADERSHIP

Motivational Speaker | Kumon North America

Student Representative

Various Locations

2015 - Present

- Selected to speak at major Kumon Student and Instructor Conferences in the U.S., Canada, and Mexico, sharing my academic journey to inspire thousands of students and educators
- Delivered talks on perseverance, discipline, and self-motivation drawn from experience completing both Kumon Math and Reading Programs by age 10
- Will represent Kumon North America at the 2025 Global Virtual Student Conference (Oct 2025)

ADDITIONAL INFORMATION

Technical Skills: Python, Stochastic modeling, Game theory, Monte Carlo simulation, Markov chains, Optimization

Interests: Classical piano, Travel, Bodybuilding, Logic puzzles, Chess, Sports analytics