

Zhihan (King) Shi

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EDUCATION

Johns Hopkins University

B.S. in Computer Science & Cognitive Science, Minor in Applied Mathematics & Statistics

Cumulative GPA: 3.52/4.0

Coursework: Foundations of Artificial Intelligence, Linear Algebra, Gateway Computing: Python

Expected May 2029

Baltimore, MD

TECHNICAL SKILLS

Languages: Python, MATLAB, R, C, C++, Rust, JavaScript/TypeScript, SQL

ML/AI: scikit-learn, TensorFlow, PyTorch, OpenAI Gymnasium, LLM Evaluation, Prompt Engineering

Tools/Infrastructure: Node/Express, Vercel/Supabase, Solana/Anchor, Git, EDF/Biosignal Processing

EXPERIENCE

Project Lead & Research Assistant, PALS Lab

Johns Hopkins Medicine

May 2026 – Present

Baltimore, MD

- Led project design and manuscript writing for a study comparing clinician and LLM psychiatric intake
- Built full-stack research platform (Node/Express, Supabase) for timed clinical interviews with simulated patients
- Worked with clinicians, medical students, and CS researchers to develop ideal platform design and evaluation

Research Assistant, Honey Lab

Johns Hopkins University

Oct 2025 – Present

Baltimore, MD

- Implemented emotion-modulated DQN and Double DQN agents with affective value systems in a custom RL environment
- Benchmarked standard vs. emotion-enhanced agents, analyzing convergence rates and cumulative reward performance

Artificial Intelligence Intern

Elysium Labs

Jan 2026 – Present

Remote

- Built batch EEG-processing pipeline scoring nightmare/hyperarousal risk across 20+ subjects
- Designed multi-component risk model validated via ablation analysis of detection accuracy and latency tradeoffs
- Developed hardware-agnostic streaming abstraction (EDF, simulated real-time, stub) with ~12ms mean latency
- Implemented Anchor/Rust smart contract and Next.js frontend for a decentralized sleep-data marketplace prototype

Citizen Scientist

NASA Open Science Data Repository Analysis Working Group

May 2024 – Present

Remote

- Used a 5-model ML ensemble to predict retinal apoptosis and oxidative stress from RNA-seq in spaceflown mice
- Analyzed brain mitochondrial data, comparing spaceflight-associated changes to Alzheimer's disease pathology
- Co-authored a review paper on biofilms in spaceflight environments (see Publications)

Student Researcher

Dr. Paravastu's Chemical & Biomolecular Engineering Lab, Georgia Tech

May 2024 – May 2025

Atlanta, GA

- Developed open-source Python packages for molecular modeling and NMR analysis of beta-amyloid structures
- Built computational pipelines processing NMR spectroscopy data, generating publication-quality graphics

PUBLICATIONS

Machine Learning Ensemble Reveals Distinct Molecular Pathways of Retinal Damage in Spaceflown Mice

npj Microgravity

- Co-Author

Biofilms: From the Cradle of Life to Life Support

npj Biofilms and Microbiomes

- Co-Author

LEADERSHIP & ACTIVITIES

Advising Fellow | *Matriculate*

Jan 2026 – Present

- Guide low-income students through the full college application process as part of a free national mentorship program

Research Mentor | *International Student Research Mentorship Program*

Jun 2026 – Present

- Mentor inaugural cohort of international students on foundational skills like literature review and manuscript writing