

# Rishabh Ranjan

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## EDUCATION

### Stanford University

Palo Alto, CA

*Bachelor of Science in Bioengineering, Computer Science | GPA: 3.8*

*Expected June 2027*

**Relevant Coursework:** *Data Structures and Algorithms, Linear Algebra, Multivariable Calculus, Discrete Math, Probability, Public Valuation of Life Science Companies, Organic Chemistry, Synthetic Biology*

## EXPERIENCE

### Neurointerventions & Drug Delivery Researcher

May 2025 – Present

*Stanford School of Medicine, Wu Tsai Neurosciences Institute (Airan Lab)*

*Palo Alto, CA*

- Developing acoustomechanically activatable liposomes (AALs) for focused ultrasound drug delivery, successfully demonstrating 40–60 % payload release in 60s under low-intensity FUS (250 kHz) of therapeutic targets
- Testing in vivo studies in rodent models, performing pharmacodistribution analysis, functional efficacy testing
- FUS uncaging boosted on-target brain ketamine concentration 3.1x yet kept drug spread <5 mm, with no histopathology or ECG changes confirmed across all studies

### Summer Fellow

June – September, 2025

*R42 Group*

*Palo Alto, CA*

- Only undergraduate selected on Longevity Biotech team, working with 4 portfolio companies to develop the R42 Copilot, an AI-powered platform for personalized longevity interventions for 100+ pilot users
- Incorporating molecular, physiological, and imaging biomarkers (e.g., epigenetics, metabolomics, retinal scans) from R42 portfolio companies to optimize copilot via federated learning and real-world clinical feedback

### Equities Research Analyst

December 2024 – June 2025

*Charles R. Blyth Fund*

*Palo Alto, CA*

- Conduct in-depth financial analysis and valuation of equities across multiple sectors to inform investment decisions for a student-managed fund with \$300,000 in assets. Sourced and pitched successful long investments (e.g. ASML)
- Present investment recommendations to fund managers, demonstrating strong analytical reasoning and financial acumen. Collaborate with team to develop asset allocation strategies and optimize portfolio performance

## PROJECTS

### Tariff-Driven Cost & Margin Modeling Pharma APIs | *Python (pandas, NumPy)*

June 2025

- Conducted end-to-end quantitative assessment of Trump-era tariffs on five critical pharmaceutical HTS codes; analyzed USITC DataWeb imports to map supply-chain exposure
- Built a pass-through pricing model (Federal Reserve framework + sector-elasticity weights) that quantified >1% cost inflation for antibiotic APIs and 0.87% margin compression for Novel Antibiotics Small-Molecule Generics

### CanDELA Cancer Detection | *Python, OnShape, BLAST, PCR*

June 2021 – May 2023

- Co-developed a low-cost, automated diagnostic tool for early GI cancer detection using serum miRNA analysis. Combines miRNA extraction, cDNA synthesis, and rt-qPCR in a compact system validated across 64 lab samples
- Employed an SVM Machine Learning Algorithm to analyze 12 biomarker levels and predict pancreatic, colorectal, and hepatic cancer risk with 100% sensitivity, 94% specificity, and 96% accuracy (AUC of 0.98).
- Awarded \$16,500 at the International Science and Engineering Fair; H. Robert Horvitz Award for Research

## SKILLS & HONORS

**Technical:** Python, C++, Java, Electronics prototyping (Soldering, Breadboarding)

**Wet Lab:** PCR, Mass Spectrometry, Western Blot, Cell Culture, Site-Directed Mutagenesis

**Additional:** CAD Modeling, BLAST, MS Excel, Financial Modeling

**Honors:** 2023 ISEF 1st Place Grand Award, 2023 ISEF 3rd Place Grand Award, AIME Qualifier, AAAS National Delegate, United States Biology Olympiad Semifinalist, Regeneron Biomedical Science Award

### Publications:

- Ranjan R\*, Tadinada G\*. The Development of a Low Cost Holistic System for the Stratified Screening of Pancreatic Ductal Adenocarcinoma. *Columbia Junior Science Journal*, 2023.