SUPRIYA ROY

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EDUCATION

UNIVERSITY OF ARIZONA | 2023-PRESENT

GPA **3.97** | Dean's List with Distinction
W.A. Franke Honors Student
College of Optical Engineering
Minors in Biochemistry and Mathematics

STANFORD ONLINE HIGH SCHOOL | 2019-2023

Attended at above one grade level
Coursework included University Level Mathematics and Physics Courses including Multivariable Calculus, Linear Algebra, Differential Equations, Real Analysis, Complex Analysis, Number Theory, Thermodynamics and Optics, and Modern Physics (Quantum Mechanics)

ACADEMIC HONORS AND SCHOLARSHIPS

UA NASA Space Grant Intern (Merit) 2024-2025
UA Summer Study Abroad Scholarship (Merit) 2024
UA Arizona Excellence Award (Merit) 2023-present
UA Honors Cambium Engineering Living Cluster 2023-2024
UA Honors Summer Intensive Course Scholarship: Problems to Possibilities 2023
Mayo Clinic Dependent Scholarship (Merit) 2023-present

EXPERIENCE

UNIVERSITY OF ARIZONA PHYSIOLOGY UNDERGRADUATE RESEARCH | 2024-PRESENT

Working with Dr. T. Secomb on a mathematical model to study the effects of Ventricular Septal Defects of increasing size on systemic and pulmonary circulation by using a mathematical model programmed in C, developed by Drs. Michael Moulton and Timothy Secomb (2023)

UNIVERSITY OF ARIZONA PLANETARY SCIENCE RESEARCH INTERN | 2022-2023

Worked with Dr. R. Malhotra (Professor of Planetary Sciences) to model the distribution of orbital inclinations of objects in the Kuiper Belt

JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY ASPIRE-CIRCUIT INTERN | 2021-2022

Undergraduate level CIRCUIT Group - Lunar Surface Innovation Initiative, specializing in Dust Mitigation
Worked alongside NASA and APL staff to design a practical lunar base proposal submitted to NASA
https://docs.google.com/presentation/d/1LTLV30K83JtqpMpkWdN5-ecSdpV7ZICTbTaqXMNKLnk/edit?usp=sharing

UNIVERSITY OF CALIFORNIA BERKELEY ASTRONOMY SUMMER RESEARCH GROUP | 2021

Speckle Interferometry Research Experience [SIRE]
Studied Red Dwarf Stars in Binary Systems with the Boyce-Astro Robotic Observatory

WOLFRAM SUMMER CAMP | 2020

Intensive two-week program to apply problem-solving and computational thinking skills using the Wolfram Language
Project: ***Characterizing Density and Ergodicity in Billiard Polygons*** – selected as a Featured Contributor and a Wolfram Community "Staff Pick"

WOLFRAM EMERGING LEADERS PROGRAM | 2020

Selected among 2020 WSC attendees to participate in a four-month group modeling project
Project: ***Using Hexagonal Cellular Automata to Model Flooding*** – selected as a Featured Contributor and a Wolfram Community "Staff Pick"

WOLFRAM WOMEN IN STEM PANEL MEMBER | 2020

Selected from Wolfram alumni as a mentor, offering insight into the experience of being a woman in STEM
Additionally awarded the Stanford Online High School First Women in STEM Club Spotlight

JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY CYBERSECURITY CAMP | 2019

Attended a hands-on program for an introduction in cybersecurity
Chosen as one of 40 students out of 200+ applicants

SIGMA XI STUDENT RESEARCH SHOWCASE TOP PRESENTER IN MATH AND COMPUTER SCIENCE | 2019

Project: ***Impact of Network Disruption on Optimal Pathlength and Transport Efficiency***

INTERNATIONAL SCIENCE AND ENGINEERING FAIR (ISEF) ALTERNATE | ROCHESTER REGIONAL SCIENCE FAIR 2019

Project: *Evaluating the Stability of Resonance in Exoplanet Systems*

BROADCOM MASTERS SEMI-FINALIST (3 YEAR WINNER) | 2016-2018

Awarded for projects on chemistry and mathematical modeling concerning epidemiology (transmission of Zika and the 1918 Influenza Pandemic).
2016
2017
2018

NATIONAL FLIGHT ACADEMY SCHOLARSHIP RECIPIENT | 2019

Learned advanced technology and flight simulation skills onsite at the Naval Air Station in Pensacola FL

SKILLS

- Extensive programming experience in AutoCAD Inventor, Wolfram Language, C++, MATLAB, LaTeX, and Microsoft Excel
- Familiar with Java, Python, HTML, CSS, and JavaScript
- Experience soldering and operating woodshop equipment
- Computer building and 3D printing certificate

ACTIVITIES

- Member of K7UAZ Amateur Radio Club
- Working on Private Pilot's License

INDEPENDENT RESESARCH PROJECTS (2017-2021)

- Mathematical Modeling of Strategies to Prevent Zika Virus Transmission
- Mathematical Modeling of Virus Transmission During the 1918 Influenza Pandemic
- Impact of Network Disruption on Optimal Pathlength and Transport Efficiency
- Evaluating the Stability of Resonance in Exoplanet Systems

PUBLICATIONS

• Malhotra, R., Roy, S., Modeling the Free Inclinations of the Classical Kuiper Belt with the von Mises–Fisher Distribution, Research Notes of the AAS 7 143 (2023)

• Bowers, Nathaniel, et al. "Observations of Small-Separation Red Dwarf Binary Pairs Using Bispectrum Phase Reconstruction." Journal of Double Star Observations 18.2 (2022): 285