# Heramba (Hebu) Patil

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## Education

**California Institute of Technology**  Pasadena, CA
*B.S Applied and Computational Mathematics, Minor: Computer Science*  Sept 2023 | June 2027

Activities: NCAA D3 Men's Water Polo, Poker Club, Student Investment Fund, Quant Club

Relevant Coursework: Applied Linear Algebra, Complex Analysis, Data Structures and Algorithms, Discrete Math, Learning Systems, Machine Learning, ODEs and PDEs, Probability and Statistics

## Experience

**Caltech: RAPID ML**  Pasadena, CA
*Researcher*  April 2023 | Present

Selected as Taylor Lawrence SURF Research Fellow. Leveraging deep learning for artifact detection, transient source identification, and celestial event classification on the NASA Nancy Grace Roman Telescope. Responsible for creating and then combining autoencoders and convolutional networks into one pipeline unique to Roman. Mentored by Dr. Ashish Mahabal and Roberta Paladini as part of RAPID (Roman Alerts Promptly from Image Differencing) team at IPAC, working with NASA, NSF, and JPL. Paper to be published in Spring 2025.

**University of Washington: EPE ATLAS Experiment**  Seattle, WA
*Researcher*  June 2022 | June 2023

Researched particle physics by developing a boosted decision tree machine learning model to identify semi-visible jets containing dark matter from standard model jets in proton-proton collisions recorded from CERN collider experiments. Work conducted in the Nobel Prize winning ATLAS EPE (Elementary Particle Experiment) group under Dr. Shih-Chieh Hsu. Presented research at UW EPE Symposium.

**University of Washington: Sauro Lab**  Seattle, WA
*Student Intern*  July 2022 | Feb 2023

Built parameter scanning functionality within a Python API to enhance modelling biochemical simulations. This novel API was integrated in the broadly used Tellurium biochemical analysis library. Work conducted under guidance from Dr. Herbert Sauro in the Sauro Lab.

**Codeigy**  Bellevue, WA
*Founder*  June 2020 | June 2023

Founded non-profit that provides free of cost online programming bootcamps around the world in a variety of subjects including competitive programming, object-oriented programming, web development, and more. Amassed over 300 students across 12 countries in more than 30 workshops at http://codeigy.org.

## Skills

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| **Programming Languages**: | Python, C++, MATLAB, Java |
| **Tools/Frameworks**: | PyTorch, TensorFlow, Mathematica, Git |

## Honors

**DE Shaw NYC Connect Fellow**, *DE Shaw*  Sept 2024
**Citadel Summer Invitational Datathon Selectee**, *Citadel*  Aug 2024
**SCIAC All-Academic Team**, *Southern California Intercollegiate Conference*  June 2024
**Taylor Lawrence SURF Research Fellow**, *Caltech*  May 2024
**Jump-DRW Poker Tournament, Top 15**, *Caltech*  Feb 2024
**Jane Street Estimathon, 4th Place**, *Caltech*  Feb 2024
**USACO Gold**, *United States Computing Olympiad*  Dec 2022
**IB Diploma Recipient**, *International Baccalaureate*  July 2022
**USAWP Outstanding Academic All-American**, *USA Water Polo*  2020-22
3 time outstanding distinction.
**Science Olympiad State Medalist**, *Science Olympiad*  2020-22
5 time medalist. Events: Thermodynamics, Experimental Design, Dynamic Planet
**DECA State Finalist**, *DECA*  2020-21
2 time finalist. Events: Business Finance Series, Entrepreneurship Series