Francisco Paz

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EDUCATION

Massachusetts Institute of Technology

September 2022 - June 2026

Bachelor's of Science, Mathematics & Computer Science - 4.9/5 GPA

Courses: Computer Vision, Machine Learning, Fundamentals of Programming, Algorithms & Data Structures, Probability, Statistics, Algebraic Topology (Grad), Algebraic Geometry (Grad)

WORK EXPERIENCE

Mathematics Research Intern - National Science Foundation: SMALL REU

Full Time: Summer 2024

- Selected for **top research program** in differential geometry and topology under Prof. Colin Adams
- **Co-authored** paper on families of hyperbolic three-manifolds arising as complements of staked knots
- **Co-authored** paper on large classes of three manifolds containing a hyperbolic handlebodies

Machine Learning Researcher - MIT Computational Design and Fabrication Group

Part Time: Feb 2024 - Present

- Training hybrid **neural network-PDE** model to learn material constitutive laws from video footage
- Built **image processing pipeline** to extract the three-dimensional structure of materials from images

Software Engineer Intern - D'Arbeloff Robotics Laboratory

Full Time: Summer 2023

- **Built robotic arm controller** to adapt robot speech & motion based off patient cooperation
- Performed statistical analysis of trial data in Pandas showing controller **reduced misalignment by 70%**
- Co-authored **paper** on results which was **published** in Robotics: Science and Systems 2024 Conference

EXTRACURRICULAR

MIT Pokerbots Curriculum Lead

Feb 2023 - Present

- Yearly competition where MIT & Harvard students create poker playing bots for new poker variants
- Lead coding sessions and daily office hours to help students debug pokerbots in Python and Java
- Teach 200+ students about applications of game theory, complexity theory and probability to bot design

Reading Program In Differential Geometry

Jan 2024 - Feb 2024

- Month long reading program covering advanced topics in differential geometry and topology
- Presented on Kauffman's combinatorial proof of Conways basic theorem for rational tangles at DRP

SKILLS

- Skills: Python | Java | TypeScript | Matlab | SQL | Pandas | Pytorch | Numpy | OpenCV