

# Richard (Ricky) A. Parada

B.S. Engineering Physics - Quantum Science & Engineering, GPA: 3.852, M.S. Computer Science - Theoretical Computer Science, GPA: 3.453, Stanford University

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## Employment

- **Mabuchi Lab Research Assistant, Stanford University (January 2024 - Present)**
  - Quantum state propagation modeling in the output channels of quantum networks using gradient-based/coherent control methods and trajectory simulations (SLH)
- **CS 161 Course Assistant, Stanford University (April 2023 - December 2023)**
  - Prepare/teach weekly sections on algorithm design, prepare problem sets/exams, hold office hours, monitor Q&A forum, grade problem sets/exams
- **Painter Group Research Assistant, California Institute of Technology (Summer 2023)**
  - Designed a qubit module for high fidelity quantum state transfer [[preprint](#)/[presentation](#)]
  - Prototyped physical layouts for future use in remote entanglement experiments
- **Resident Assistant, Stanford University (September 2021 - June 2023)**
  - Managed 88 ethnically diverse all frosh (2021-2022) and upper class (2022-2023) undergrads, budgeted dorm funds as house treasurer, planned kickass events
  - Taught Frosh 101 - intro course focused on easing the 1st year transition to life at Stanford (Fall 2021)
- **CS 106A/B/L Teaching Assistant, Stanford University (September 2021 - March 2023)**
  - Section lead (TA'd) weekly lessons to ~10 students in introductory programming courses, graded assignments, helped students debug during office hours
  - Mentored incoming section leaders as a small group lead (SGL)
- **Herrera Lab Research Assistant, Universidad de Santiago de Chile (USACH) (Summer 2022)**
  - Classified birefringent materials using optics trained feed-forward Neural Networks
  - Used standard polarimetry techniques to calculate the Mueller matrix elements and Brewster's angle in reflection for Barium Borate (BBO) [[preprint \(to come\)](#)/[presentation](#)]
- **Shen Laboratory Research Assistant, Stanford University (Summer 2021)**
  - Computed corrections on energy/momentum distribution distribution curves (EDC/MDCs) of cuprate superconductor Bismuth strontium calcium copper oxide (BSCCO)
  - Automated extension of the first Brillouin Zone on high  $T_c$  angle-resolved photoemission spectroscopy (ARPES) data [[presentation](#)]
- **Breakout Mentors - Kids Coding Mentor (December 2019 - June 2021)**
  - Mentored middle/high school students in creating interactive projects using Java, Arduino, Unity, Python, and more
- **Software Engineer and Researcher, PDM Beyond Vision (Summer 2019, 2020)**
  - Integrated Leap Motion with ROS to control drones via hand movements (2019)
  - Generated realistic environments via machine learning for drone-based simulation (2020)
  - Joint first author of MDPI Applied Sciences [journal paper](#) and [video demo](#)
- **Intern, ZPX - Interactive Software (Summer 2018 - Spring 2019)**
  - Interned with a game development company in Lisbon, Portugal (specialized in Virtual Reality game development for 9 weeks over the summer)
  - Created a User Interface for the company's multiplayer platform game: VR Gladiator

## Relevant Coursework

- Physics: Classical Mechanics, Special Relativity, E&M, Waves, ODE's and PDE's, Quantum Mechanics, Thermodynamics, Statistical Mechanics, Computational Physics, Advanced Laboratory (co-authored [final paper](#) on Measuring Vanadium phase transitions), Path Integrals, Quantum Circuits, QEC, Atoms Protons and Fields, Quantum Field Theory, Quantum Hardware
- Computer Science: Programming Abstractions, Computer Systems, Discrete Mathematics, Probability, Algorithm Design, Data Structures, Artificial Intelligence Principles, Machine Learning (co-authored [final paper](#) on Alzheimer's classification), Deep Learning (co-authored [final paper](#) on Generative Music), Quantum Computing Open Source Project Experience, Theory of Computation, Computational Complexity, Algorithmic Fairness, Quantum Computing, Quantum Complexity Theory, Optimization, Randomized Algorithms, Robot Autonomy
- Misc: Proof-based Multivariable Calculus and Linear Algebra, Functions of a Complex Variable, Information Theory, Linear Dynamical Systems, Decision Making Under Uncertainty, Electronics and Photonics Laboratory

## Community Service/Extracurricular Activities

- Study abroad in Santiago, Chile (Summer 2022)
  - Took courses on Chilean Spanish and transportation systems in Latin America
  - Pursued ML + Optics research at local Chilean University (USACH)
- Stanford Quantum Computing Association, Social/Community Impact Committee (2021-present)
  - Organize speakers/events at the intersection of Quantum Computing (QC) and social good
  - Collaborate with other organizations and develop initiatives that improve DEI within QC
- Stanford Splash volunteer teacher (2019 - present)
  - Teach energetic high schoolers how to solve a Rubik's cube once a quarter
- Stanford Habla Language Partner (2021 - present)
  - Teach English to campus service workers through bi-weekly lessons targeting grammar refinement and oral fluency
- Virtual Section Leader (VSL), Code in Place (Spring 2020, 2021, 2023)
  - Part of a teaching team during COVID-19 pandemic, with 10,000 global students and 900 volunteer teachers participating from around the world
  - Prepared and taught a weekly section based on material from Stanford's introductory programming course, CS106A
  - Gave weekly feedback on student assignment submissions
  - Led workshops and training sessions for new VSLs (2021)
- Virtual Section Leader, Coding Together (Summer 2020)
  - Same role as Code in Place, save for following Harvard's online introductory CS 50 course

## Special Interests/Talents

- Programmed/built a Rubik's Cube Solving Robot using Raspberry Pi in bare-metal C (Spring 2020)
- WCA Speedsolving Competitor- Rubik's cubes (2x2-7x7), Megaminx, Pyraminx, 3x3 One-Handed, 3x3-5x5 Blindfolded, Multi-Blind 3x3 (ranked 41st nationally in blind events, 2014-present)
- Long distance runner (800m- 2:12; 1600m- 5:10; 3200m- 11:20; Marathon- 3:23:48)
- Spanish (2015-present), Piano (2007-present), Soccer (2004-present)
- Programming- Java, C++, C#, Python, C, Assembly, Julia, JavaScript, Arduino, Unity, Angular, MATLAB, Mathematica, Igor Pro, Tensorflow, Keras, Qiskit, QuTiP, Braket (Amazon), Sonnet

❖ References available upon request