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 framework)
- **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, refine ethics course content
- **Painter Group Research Assistant, California Institute of Technology (Summer 2023)**
  - Designed a qubit module for high fidelity quantum state transfer
  - Prototyped physical layouts for future use in remote entanglement experiments
- **Resident Assistant, Stanford University (September 2021 - June 2023)**
  - Managed 88 ethnically diverse all frosh and upper class 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
- **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)
- **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
- **Breakout Mentors - Kids Coding Mentor (January 2020 - 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)
- **Intern, ZPX - Interactive Software (Summer 2018 - Spring 2019)**
  - Interned with a game development company in Lisbon specializing in Virtual Reality
  - 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, Path Integrals, Quantum Circuits, Quantum Error Correction, Atoms Protons and Fields, Quantum Field Theory, Quantum Hardware, Ultracold Quantum Physics, Quantum Control and Engineering

- **Computer Science**: Programming Abstractions, Computer Systems, Discrete Mathematics, Probability, Algorithm Design, Data Structures, Artificial Intelligence Principles, Machine Learning, Deep Learning, Quantum Computing Open Source Project Experience, Theory of Computation, Decision Making Under Uncertainty, Computational Complexity, Algorithmic Fairness, Quantum Computing, Quantum Complexity Theory, Optimization, Randomized Algorithms, Robot Autonomy, Networking, Cryptography, Compilers, Deep Learning for Computer Vision
- **Misc**: Multivariable Calculus, Linear Algebra, Complex Functions, Information Theory, Linear Dynamical Systems, 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, 2024)
    - 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)
    - Hired, onboarded, and held office hours for VSLs as Head TA (2024)
- 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)
- Track + long distance running (800m- 2:12; 1600m- 5:10; 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