



## Introduction

Hi, my name is Ricky, and I am passionate about tapping into quantum computing to solve real world optimization and simulation problems. Utilizing my experiences in material simulations, microscopy, as well as my continued involvement with online quantum communities, I am searching for opportunities in quantum software development.

## Research and Work Experience

### Research Internship

Institut Català de Nanociència i Nanotecnologia (ICN2), Barcelona

November 2021 – July 2022

- Characterization at the atomic scale of nanomaterials for applications in quantum technologies
- Analyzed nanowires and heterostructures to determine composition and strain
- Utilized a Transmission Electron Microscope and related spectroscopies such as EDX and EELS to determine material characteristics
- Prepared presentations on analysis of samples for external research partners
- Thesis title: Selected Area Growth Semiconductor/superconductor hybrid Majorana Nanowire-based Networks and planar heterostructures (e.g. 2DEGs and 2DHGs)

### Research Lab Assistant

University of Nevada, Reno

October 2019 – May 2021

- Simulated Cu<sub>2</sub>N crystal surface, phonon vibrations, and STM images on quantum ESPRESSO, a Density Functional Theory software kit.
- Designed a unique machine to electrochemically etch silver tips to be used in an STM.
- Modeled lab equipment with the CAD software Inventor.
- Conveyed advanced physics concepts to group members through presentations.
- Thesis title: Phonon Dispersion of Cu<sub>2</sub>N (001) Surface

### Admin

Quantum Universal Education

August 2020 – Current

- Organized an international community of students, professionals, and enthusiasts to create and disseminate quantum computing learning resources
- Led workshops to assist in learning resource assembly
- <https://fullstackquantumcomputation.tech>

## Conferences

- IEEE Quantum Week 22, Zoom Host Volunteer
- IEEE Quantum Week 21, Presented workshop on Developing Effective Methodologies to Teach Quantum Information Science to Early-Stage Learners, Oct 2021
- International Conference on Science and Technology of Quantum Matter (QUANTUMatter 2022) (Barcelona) June 2022

## Education

Masters in Quantum Science and  
Technology

University of Barcelona

08/2021 – 08/2022

B.S. in Physics

B.S. in Engineering Physics

University of Nevada, Reno

09/2017 – 05/2021

## Skills

Python

C++

Linux

Qiskit

LabVIEW

Autodesk Inventor

QuantumESPRESSO

## Languages

English - Native

German - Fluent

Spanish - Basic