

EDUCATION

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- University of California, Berkeley – Physics, Computer Science, Applied Math, GPA – 3.84 May 2022
- Coursework – Structure & Interpretation of Computer Programs, Data Science, Data Structures & Algorithms, Numerical Methods, Artificial Intelligence, Machine Learning, Discrete Math, Probability, Linear Algebra, Experimental Physics

SKILLS

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- **Languages/Frameworks** – Python, Java, SQL, MATLAB, Docker, Git, MongoDB, Slurm
 - **Libraries** – TensorFlow, Keras, NumPy, Matplotlib, PyTest, Qiskit, PyMongo, SciPy, Pandas

WORK EXPERIENCE

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- **[POLARISqb](#) - Software Engineer** Aug 2022 – March 2023
 - Published [whitepaper](#) to arXiv regarding the use of D-Wave Optimizers to solve Chicken and Waffles problem
 - Implemented D-Wave Quantum Annealing and other tools and services to optimize (**220 CPU hours on GCP to 5 hours**) drug discovery process
 - Optimized pipeline that evaluates large chemical space (**> 1 billion molecules**) to produce optimal drug candidates
 - Designed containerized service to filter molecular fragment database with **> 1M records** for druglike fragments based on chemical constraints in **< 30 seconds**
 - Implemented robust testing procedures, including GitLab CI/CD, for various company libraries and modules
 - Handled chemists' technological needs and problems during drug research projects
 - **[IonQ](#) - Quantum Machine Learning Intern** May 2021 – Aug 2021
 - Implemented **Quantum ML** approach to Vehicle Trajectory Prediction problem in field of autonomous vehicles
 - Developed code to **generate trajectory data** consisting of vehicle positions along one-dimensional axis
 - Built entire QML framework from scratch that creates model, feeds it data, and trains it to **90% accuracy**
 - Participated in team meetings and communicated updates to manager and mentors regularly
 - Created educational content for and delivered IonQ lectures at Sungkyunkwan University
 - **[Berkeley Physics](#) - Quantum Computing Researcher** Jan 2021 – July 2021
 - Simulated surface trap for trapped-electron quantum computing in Dr. Häffner's group at Berkeley
 - **Derived theoretical magnetic field gradient** function by hand for several trap configurations
 - Optimized gradient at electron's location by varying trap parameters like current, wire length etc.
 - **[N3AS](#) - Particle Physics Researcher** Jan 2021 – July 2021
 - Studied Neutrino Oscillations using **numerical simulations** and Tata Institute of Fundamental Research course
 - Simulated & **created plots** to **aid observability and analysis** of various neutrino phenomena including MSW resonance and vacuum & matter oscillations
 - **[Berkeley Astrophysics](#) - Computer Vision Researcher** June 2020 – Jan 2022
 - Implemented novel approach to **classification of turbulence patterns** in astrophysical fluids
 - Designed **Convolutional Neural Network** using **TensorFlow, Keras, NumPy, Matplotlib** and other libraries
 - Implemented configuration file functionality for the quick creation of neural networks
 - **Submitted jobs** to [Berkeley Savio](#) using **Slurm** and **created loss plots and confusion matrices** to analyze results

PROJECTS

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- **[Tic-Tac-Toe AI](#)** May 2020 – June 2020
 - **Created intelligent agent** that plays Tic-Tac-Toe against user
 - Implemented **Minimax** algorithm and **developed heuristic** to differentiate good board position from bad
 - **[Advanced Experimental Physics Project](#)** Aug 2021 – Dec 2021
 - **Gathered data** pertaining to four classical experiments in Physics: Optical Pumping, Gamma Ray Spectroscopy, Rutherford Scattering, and Compton Scattering
 - **Analysed data and compiled results** in four separate research articles written in published arXiv journal format
 - **[ULAB Cosmology Research](#)** Sept 2019 – May 2020
 - Conceived project idea to **calibrate Period-Luminosity relation** for Cepheid variables
 - **Researched** relevant physics, **designed** project plan, and **extracted necessary data** from Gaia Archive
 - **Collaborated** with team to analyze data using NumPy, Matplotlib, SciPy and other tools

ACHIEVEMENTS & LEADERSHIP

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- **MIT iQuHack 2021 Overall Winner, Quantum Whack-a-Mole ([GitHub Link](#))** Jan 2021
 - Developed Quantum version of Whack-a-Mole to inspire and inform about Quantum Circuits and design
 - Leveraged Qiskit to design game with objective to find quantum mole, which uses quantum mechanics to escape!
 - **Project Division Leader at Quantum Computing Club at Berkeley (QCB)** Jan 2021 - Present
 - Designed projects to help students navigate their way through the vast world of Quantum Computing