# HANS C. GUNDLACH

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## Education

- Cambridge University, MASt Mathematics, 2021-2022,
  Essay: "Computer Design of Quantum Experiments" (link)
- UC Berkeley, majors: Mathematics (3.8), Physics (3.9), Overall GPA: 3.8, 2017-2021,
  Graduated with General Distinction & Departmental Honors
  Thesis: "QAOA Makes the Cut: Investigating Quantum Max-Cut Solutions"
- Exchange student for two semesters at EPFL, Lausanne, Switzerland 2018-2019
- Lakeside High School, Seattle, 2013-2017

## Projects/Work

- **AI safety research resident, REMIX Program, Redwood Research**
  Dec 2022- Feb 2023: Designed and implemented (using PyTorch) experiments to understand how superhuman AI makes strategic decisions in the game of Go.
- **Quantum Computing and Machine Learning Researcher and Paper Coauthor**
  2020 - 2021: Co-authored paper on machine learning for quantum protocol design accepted at MSML 2021 (paper link) . Completed honors thesis investigating new (counterdiabatic) methods for Max-Cut. Implemented and designed reinforcement learning algorithms using Python and the ML platform TensorFlow to tackle problems in quantum circuit design as part of Professor L.Lin's group at UC Berkeley.
- **Pasto, Colombia AI Bike&Traffic-Recognition Engineer/AI-Workshop Leader**
  2019: Worked as an engineer sponsored by Ingénieurs du Monde, to alleviate traffic and investigate safe bicycle lanes in Pasto, Colombia (a city of 390,000 people). Started and built neural network traffic counting system using machine learning APIs for the specifications of the University of Nariño and the Transportation Bureau of Pasto. The system was able to accurately recognize and count buses, taxis, and bicycles. Led a 2-day workshop on deep learning at the University of Nariño.
- **Lakeside School Attendance System Entrepreneur and Developer**
  2017: Initiated, implemented, and negotiated the sale of automatic Wifi attendance system after identifying problems with the previous slow manual sign-in system. I built the system using Java, JFrame, SwingWorker, and SMB. I worked with the administration to design the UI to their specifications. Lakeside High School bought the system and it is currently in use keeping highly accurate attendance information on 600+ students.
- **Virtual Reality Developer Featured at Seattle Mini-Maker Fair**
  2016: Designed and co-developed VR maze game for Android using Unity and automatic mesh generation libraries. App was selected for VR exhibit at Seattle Mini-Maker Fair.
- **Bioinformatics Research Intern at Fred Hutchinson Cancer Research Center**
  Summer 2016 and 2017: Researched and implemented quantitative metrics to understand the evolution of pre-cancerous (meta-plastic) tissue and built a visualization system using R.

## Achievements/Activities/Skills

- Art (link) selected for (2016) 20 under 20 exhibit at Bellevue Art Museum
- Activities: Painting, Standup Comedy, Cello
- Overall winner of Global Hacks 2020 for CovidAccountable, a chrome extension that highlights US-COVID funding.
- Started/Created Wikipedia articles on math and CS with over 40,000 views (link).