

# Ryan Anselm

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## EDUCATION

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**Columbia University**  
*B.S. in Computer Science, Magna Cum Laude*  
Minors: Applied Math, Applied Physics

2021 - 2024  
**GPA: 4.05/4.33**

## RESEARCH EXPERIENCE

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**Summer Research Assistant, CCQ @ Flatiron Institute**  
*New York, NY*

May 2024 - Aug. 2024

- Investigated quantum-inspired tensor network methods to compress and transform continuous-variable multivariate functions at the Flatiron's Center for Computational Quantum Physics (CCQ).
- Designed and implemented algorithms for tensor network construction, optimization, and function approximation in Julia.

**Columbia Quantum Computing Theory Group**  
*New York, NY*

Aug. 2023 - May 2024

- Studied complexity-theoretic lower bounds for hybrid digital-analog quantum computation under the supervision of Prof. Henry Yuen.
- Investigated architecture-aware quantum circuit compilation for reconfigurable neutral atom quantum computers.

**Summer REU Student, Learning the Earth with AI and Physics**  
*New York, NY*

June 2022 - Aug. 2022

- Developed neural network-based ML models to emulate cloud microphysics in atmospheric models, achieving comparable accuracy to traditional bulk/bin numerical simulation techniques, as measured by MSE.
- Leveraged Python ecosystem (NumPy, PyTorch, Scikit-learn, SciPy, Xarray) to implement and evaluate ML models, culminating in a presentation at the 2022 American Geophysical Union Fall Meeting.

**Freshman Research Initiative Fellow, Henkelman Group**  
*Austin, TX*

Jan. 2021 - Aug. 2021

- Developed algorithms to efficiently locate charge density saddle points corresponding to chemical bonds in molecular datasets as part of Bader, a computational charge analysis code written in Fortran.

## PROFESSIONAL EXPERIENCE

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**Software Engineer, Salesforce**  
*San Francisco, CA*

Sept. 2024 - Present

- Making AI agents @ Agentforce (Salesforce AI)

**Teaching Assistant, Columbia Department of Computer Science**  
*New York, NY*

Sept. 2022 - May 2024

- Led office hours, graded assignments, and contributed to course content for:  
COMS 4232: Advanced Algorithms (Spring 2024), COMS 4281: Intro to Quantum Computing (Fall 2023), COMS 3261: Computer Science Theory (Spring 2023), CSOR 4231: Analysis of Algorithms I (Fall 2022)

**Software Engineer Intern, Salesforce**  
*San Francisco, CA*

May 2023 - Aug. 2023

- Engineered cross-platform marketing integrations for Salesforce Data Cloud, connecting major social media platforms like Snapchat and LinkedIn to streamline multi-channel campaign management for customers.
- Leveraged Java, Spring Boot, SQL, and Docker to execute and optimize key technical changes across the Salesforce Data Cloud infrastructure.

## ACTIVITIES & SERVICE

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### **Seminar Co-Organizer, Columbia Undergraduate Learning Seminar in Theoretical CS**

- Led and organized a Spring 2024 undergraduate reading group on quantum complexity theory with 8 weekly talks, covering topics such as hardness results for shallow quantum circuits, stabilizer circuit simulation, and the quantum PCP conjecture.
- Gave presentations in other semesters on spectral graph theory, randomized complexity classes, and semidefinite programming for MAX-CUT approximation.

### **Mentee, Columbia Mathematics Directed Reading Program**

- Explored percolation theory and its connections with statistical physics with a graduate student mentor.

### **Co-President, Columbia University Science Olympiad**

- Founded and led a team of 12 to organize a day-long Science Olympiad tournament for 400+ high school students, managing a \$2000+ budget, coordinating 75 volunteers, and liaising with 29 teams.
- Wrote 12 Science Olympiad tournament tests as an event supervisor for Columbia, MIT, UT Austin, UPenn, and UPitt invitationals, as well as the 2021 national tournament.

## AWARDS

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NSF Graduate Research Fellowship	2025
1st Place, 2024 MIT iQuHack Quantum Hackathon	2024
Tau Beta Pi Junior Inductee	2023
Top 500 scorer, William Lowell Putnam Mathematical Competition	2022
USA Physics Olympiad Semifinalist	2020
United States National Chemistry Olympiad High Honors	2019, 2020
USA Computing Olympiad Gold Division	2019