# Lucy Hao

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## Research Interests

theoretical chemistry, physical chemistry, computational chemistry, computational optimization, programming language theory

## Education

**University of British Columbia**                    Vancouver, British Columbia

B.Sc. Combined Computer Science and Chemistry          *Sep. 2019 – May. 2025*
*GPA: 80%*

**Selected coursework (* means in progress)**

- CPSC 322: Introduction to Artificial Intelligence
- CPSC 302*: Numerical Computation for Algebraic Problems
- CPSC 406*: Computational Optimization
- CHEM 318: Principles of Catalysis
- CHEM 412: Electronic Structure of Atoms and Molecules
- CHEM 401: Principles of Spectroscopy

## Publications

**Automated medical chart review for breast cancer outcomes research: a novel natural language processing extraction system.**
Chen, Y., Hao, L., Zou, V.Z., Hollander, Z., Ng, R.T., Isaac, K.V.
*BMC Med Res Methodol 22, 136 (2022).*

## Research Experience

**University of British Columbia, Department of Chemistry**

Undergraduate Research Assistant                    *May. 2024 – current*
Researching application of Large Language Models (LLMs) and automated planning to generate workflows on self-driving labs.

**PROOF Centre, University of British Columbia, Department of Computer Science**

Undergraduate Research Assistant                    *Jan. 2021 – May 2021*
Utilized pre-trained word embeddings, uniquely generated regular expressions and OCR correction algorithm to extract information from structured electronic health records, achieving a validation set accuracy of **91%** with minimal training data. Performed statistical analysis on results, and helped write the Methods, Results and Discussion sections of published paper.

## Teaching Experience

**Systematic Program Design (CPSC 110)**                    *Winter 2022*

**Systematic Program Design (CPSC 110)**                    *Winter 2021*
**Software Construction (CPSC 210)**                    *Summer 2021*
**Software Construction (CPSC 210)**                    Winter 2020

## Industry Experience

**Capital One,** TIP                                   New York City, New York

Software Engineering Intern                                   *Summer 2022*
Piloted the use of AWS Device Farm, creating end-to-end tests for Mobile App Verification for the Capital One app and website, as well as finding and relaying five pain points of AWS Device Farm to upper level technical executives.

**Microsoft,** Garage                              Vancouver, British Columbia
Software Engineering Intern                                   *Summer 2021*
Aided in development of features for internally requested sandbox tool for the Microsoft Graph API. Helped troubleshoot bugs in browser-based sandbox tool and Microsoft Teams based sandbox tool, documenting fixes and possible solutions for unsolved bugs.

## Service and outreach

**Dry Lab Co-Lead and Wiki Lead, UBC iGEM**      *Nov 2023 – Current*

Focussed on leading the dry lab team to create models and tools that are well integrated with our wet lab. Implementing an internal documentation system using practices from open source communities.

**Wiki Lead and Dry Lab Member, UBC iGEM**       *Dec 2022 – Nov 2023*
Used GROMACS to model protein-of-interest, validating wet lab results.

**Director of Marketing and Technology, StarHacks**   *Sep. 2020 – Jan. 2022*
StarHacks is an international non-profit striving to create gender-inclusive spaces in computer science, breaking the stereotype of what it means to be a coder one hackathon at a time.

**Director of Marketing, nwPlus**                *Sep. 2021 – Mar. 2022*
nwPlus is a student-led club supporting aspiring programmers and designers, based out of University of British Columbia.

**Mentor, connect-f (nwPlus)**                    *Jul. 2020 – Apr. 2021*
A mentorship program for girls* in tech designed to pair high school students with university students and new grad mentors.

## Talks and tutorials

**Git, GitHub and Glue**                                   *Jan. 2024*

UBC iGEM 2023/24

**Intersections of Technology Panel**                      *Jan. 2022*
StarHacks II

**Intro to Technical Interviews**                          *Nov. 2021*

HackCamp

**Pursuing a Successful Career in CS + Technology**          *Jul. 2021*
Hacking 4 Community

**Intro to NLP**                                             *Jun. 2021*
Hydrangea Hacks

**Intro to Git and GitHub**                                 *Jun. 2021*
Citro Hacks

**Computers and Technology Panel**                          *May 2021*
Joy to Job

**Intro to Git and GitHub and Intro to Python**             *Jan. 2021*
StarHacks I

Honours and

Scholarships

Biotalent Canada Student Work Placement Program Grant ($5,000)          *2021*

Alexander Rutherford High School Achievement Scholarship ($2,500)          *2019*