Lucy Hao

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Education

University of British Columbia   Expected Dec 2024
B.Sc. Combined Computer Science and Chemistry
- *Coursework:* Introduction to Artificial Intelligence, Principles of Catalysis, Advanced Organic Chemistry, Statistical Mechanics in Chemistry, Principles of Spectroscopy

Research Experience

UBC iGEM   Nov. 2022 - current
Dry Lab Co-Lead and Wiki Lead   *Vancouver, Canada*
- Leading a team of 6 members to develop innovative models and tools to aid research in a synthethic biology context.
- Championed and implemented an **internal documentation system** for all members to promote knowledge sharing, team transparency and iterative steps towards the success of our project.
- For 2022/23 season, modeled the **thermodynamics of a StayGold intein-protein** folding in aqueous solution, confirming the wet lab results that protein folding was not thermodynamically favored in aqueous solution.
- Single-handedly developed the project wiki, required for the project to be judged.
- *Skills:* Python, SSGs, GROMACS, PyMol, Pyrosetta, HPC, Bash, literature review

PROOF (Prevention of Organ Failure) Centre of Excellence   Jan. 2021 - May 2021
Undergraduate NLP Researcher   *Vancouver, Canada*
- Re-implemented a fragile and nongeneralizable natural language processing pipeline to generate a specific algorithm that can extract patient information from any type of clinical note with any set of labels
- Added pre-trained word embeddings, generalizable regular expressions, and an OCR correction algorithm to the pipeline, achieving a validation set accuracy of **91%** on 100 unseen clinical notes
- Published paper as second author: Chen, Y., Hao, L., Zou, V.Z. *et al.* Automated medical chart review for breast cancer outcomes research: a novel natural language processing extraction system. *BMC Med Res Methodol 22*, 136 (2022)
- *Skills:* Python, regular expressions, scispaCy, pandas, Natural Language Processing, Unix, GUI, literature review

Teaching Experience

Systematic Program Design (CPSC 110)   Winter 2021, Winter 2022
Computer Science Teaching Assistant
- Led three labs, graded exams/problem sets, and taught concepts from functional programming and data-driven programming in Racket; received an evaluation score of **90%** during the Winter 2021 term

Software Construction (CPSC 210)   Winter 2020, Summer 2021
Computer Science Teaching Assistant
- Led four labs, invigilated exams, graded exams/final projects, and taught concepts such as test-driven design, design patterns, and object-oriented programming in Java; received a **100%** evaluation score during the Summer 2021 term

Industry Experience

Capital One   Jun. 2022 - Aug. 2022
Software Engineering Intern (TIP)   *New York, United States*
- 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
- *Skills:* Python, Selenium, Java, Appium, AWS

Microsoft   May 2021 - Aug. 2021
Software Engineering Intern (Garage Program)   *Vancouver, Canada*
- Collaborated with six other interns to plan and develop an internally requested sandbox tool that allows users to try out the Microsoft Graph API within Microsoft Teams without technical set-up
- Added static analysis tools and pre-commit hooks, reducing the time to review and approve PRs by over **10 minutes**
- Refactored the code-base by introducing functional programming concepts and abstracting duplicated code, resulting in the removal of over **500+** lines of code
- Communicated with two teams to troubleshoot five bugs and created documentation for possible solutions
- *Skills:* React, Redux, JavaScript, TypeScript, Teams App Development, Microsoft Graph API