

EXPERIENCE

Research Software Engineer

Quartic.ai Inc.

May 2021 – Present

Toronto, Canada

Freelancer Full-Stack Developer

Molson Flooring Inc.

Nov 2020 – Feb 2021

Toronto, Canada

- Prototyped responsive front-end theme with content marketing using Figma.
- Developed responsive front-end website with **HTML, CSS** and Implemented on top of **WordPress**.
- Project URL: <https://molsonflooring.com/>.

Wild Crane Tattoos Inc.

- Developed responsive front-end website with **HTML, CSS, JavaScript, Bootstrap** using the **Django**.
- Deployed Django Project to **Heroku** platform.
- Project URL: <https://www.wildcranetattoos.com/>.

Research Intern

Omics Data Automation Inc.

Jan 2020 – Oct 2020

Portland, USA

- Deep learning-based analysis on histopathology images of lung cancer. Replicated the supervised learning tasks of cancer type classification and gene mutation status prediction on pathology image.
- Preprocessed more than five hundred digital whole-slides pathology image using **OpenCV**.
- Performed inference and transfer learning on TCGA pre-trained **GoogLeNet-Inception V3 CNN**.
- Improved performance from **AUC less than 0.5 to 0.74** by transfer learning.
- Adapted pre-trained InceptionResNetV2 models from **Keras** and developed **Python** scripts for transfer learning.

Graduate Teaching Assistant

Oregon Health & Science University

Mar 2020 – Jun 2020

Portland, USA

- CS/EE 559/659 Machine Learning.

Research Intern

Ontario Institute for Cancer Research

Sep 2017 – Apr 2018

Toronto, Canada

- Investigated the gene regulatory networks of long non-coding RNAs (lncRNAs) in multiple cancer types.
- Analyzed RNA-Seq dataset from two databases, Pan-Cancer Analysis of Whole Genomes (PCAWG) and The Cancer Genome Atlas (TCGA).
- Identified potential target genes that are statistically significantly correlated with the lncRNA in the tumor type.
- Used **rank aggregation** technique in **R** (RobustRankAggreg package) to find target genes of lncRNA that are consistent in multiple tumor types.
- Completed pathway enrichment analysis using the **gProfileR** package in R. Created enrichment maps with **Cytoscape** that represent resulting pathways as easily interpretable network diagrams.

Research Intern

University of Toronto

May 2017 – Aug 2017

Toronto, Canada

- Analyzed the quantitative traits for selection in intrinsically disordered proteins/regions (IDP/IDR) with phylogenetic comparative method and computational simulations.
- Obtained protein sequences from Ensembl database with **Python** scripts through **RESTful API**.
- Aligned Multi-species sequences with MUSCLE (Multiple Sequence Comparison by Log-Expectation). Depicted the Alignments visualization using Jalview.
- Obtained the coordinates of disordered regions predicted by DISOPRED3.

PUBLICATIONS

- Submitted: Yi Hu, Zhaozhen Wu, Haitao Tao, Sujie Zhang, Xiao Wang, et al. "Efficacy and safety of anti-PD-1 therapy in combination with PARP inhibitors for patients with advanced solid tumors." Cancer Immunology, Immunotherapy. 2020

TECHNICAL SKILLS

Languages:

Python, R, HTML, CSS, Javascript, SQL, NoSQL, C, Matlab, Java.

Frameworks:

MERN Stack, Django, Gatsby.

Tools:

PyTorch, TensorFlow, Keras, OpenCV, scikit-learn, numpy, pandas, etc.

Software:

Figma, Wordpress, Photoshop, Lightroom, Tableau, AutoCAD, SketchUp, Premiere Pro.

Working towards AWS DevOps Developer Associate Level Certificate.

Front-End Development, Bioinformatics, Data Analysis, Algorithm & Data Structures, Database, Software Development, Data Modeling and Visualization, Deep Learning, Machine Learning, Image Processing.

EDUCATION

Master of Science

Bioinformatics and Computational Biomedicine Oregon Health & Science University

Sep 2018 – Jun 2020

Portland, USA

Honors Bachelor of Science

Bioinformatics and Computational Biology University of Toronto

Sep 2014 – Jun 2018

Toronto, Canada

ADDITIONAL EXPERIENCE

COVID19 Challenge, Beat the Pandemic.

MIT MEDICINE Hackathon

Apr 2020

Virtual

- Addresses themes such as protecting vulnerable populations and supporting the healthcare system. Experienced with collaborations, leaderships and mentorships involved in solving the problem, develop solutions and business models with possible products.

Oncology Department

The General Hospital of the People's Liberation Army

Dec 2019

Beijing, China

- Shadowed oncologists in inpatient and outpatient setting.
- Assessed the technical challenges and computational solutions to improve the clinical workflow.

Central City Concern Organization

Old Town Clinics

Nov 2019

Portland, USA

- Shadowed occupational therapist treating Insomnia patients.
- Observed the process of patients' data collection and clinical workflow.