Christopher West

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EXPERIENCE

University of Waterloo, Cheriton School of Computer Science

Waterloo, ON
Fall 2021 –Fall 2023
(Anticipated Graduation Sept 26th, 2023)

Graduate Student and Instructional Assistant

Supervisors: Dr. Anita Layton, Dr. Justin Wan

- Development of skillset in resource-heavy programming, problem-solving and domain-specific (medical imaging) applications
- Continuous leadership and interpersonal development from supporting course instruction and teaching (primary instructional assistant for CS231 in Summer 2023)
- Resilience in high-workload environments (simultaneous classes, research and instructional support duties)
- Final research paper (in progress): *Parameterizing the Spatial Distribution of Renal Tumors using Modified Spherical Coordinates*
- Primary author for preprint: *Random (Un)rounding : Vulnerabilities in Discrete Attribute Disclosure in the 2021 Canadian Census* [6]

University of British Columbia, Data Science Institute

Vancouver, BC
Summer 2020

Summer Research (Computational Medicine)

Supervisors: Dr. Raymond Ng, Jean-Francois Rajotte

- Experimented with new systems of synthetic data generation that preserve privacy (akin to differential privacy, specifically for use in the medical domain)
- Updated existing Privacy-preserving synthetic data generation framework to TensorFlow 2.0 (private GAN codebase)
- Coauthor in *Reducing bias and increasing utility by federated generative modeling of medical images using a centralized adversary* [1,2]

International Conference on Smart Multimedia (ISCM 2019)

San Diego, CA
Winter 2019

First Author and Program Chair

- First author and keynote speaker for: *Assessing the Capability of Deep-Learning Models in Parkinson's Disease Diagnosis* [3]
- Program Chair for **Multimedia in Medicine**

University of Alberta Computer Science Department

Edmonton, AB
Summer 2019

Summer Research (Computational and Rehabilitation Medicine)

Supervisor: Dr. Irene Cheng

- Extended pose-estimation models to medical imaging to improve outcomes for spinal-cord-injury patients
- Worked together with medical professionals to develop much needed practical applications for rehabilitation-based research

University of Alberta Computer Science Department

Summer Research (Computational Medicine)

Supervisor: Dr. Irene Cheng

Edmonton, AB
Summer 2018

- Developed comprehensive deep neural-network models to diagnose Parkinson's disease from MRI data
- Extended findings to locating areas of Parkinson's-related brain atrophy through novel sensitivity-analysis
- Acquired skills in TensorFlow and medical-image-processing
- Paper accepted and presented (Springer, *Assessing the Capability of Deep-Learning Models in Parkinson's Disease Diagnosis* [3])

University of Alberta Chemistry Department

Edmonton, AB
Summer 2017

Database and Inventory Management

Supervisor: Dr. Dennis Hall

- Created and expanded a FileMaker database system for chemical research samples
- Validated and updated erroneous or outdated information regarding inventory for the chemical database *Chematix* (including personally handling toxic or dangerous chemicals)

University of Alberta Computer Science Department

Edmonton, AB
Summer 2016

Summer Research (Intern)

Supervisor: Dr. Denilson Barbosa

- Produced *Sentiment Keyboard* [4,5] alongside fellow researchers, an app for detecting and preventing cyberbullying
- Developed skills in Natural-Language-Processing, Machine Learning and Mobile-App Design

EDUCATION

University of Waterloo

Waterloo, ON
Fall 2021 –Fall 2023
(Anticipated Graduation Sept 26th, 2023)

Master's in Computer Science

Supervisors: Dr. Anita Layton and Dr. Justin Wan

- Pursuing a computer science Master's degree, with a focus on statistical and deep learning techniques for renal CT image segmentation and analysis.
- Final Research Paper (in progress): *Parameterizing the Spatial Distribution of Renal Tumors using Modified Spherical Coordinates*
- Published SIAM book review: *Transformers for Natural Language Processing, 2nd Edition* by Denis Rothman [7]
- Preprint: *Random (Un)rounding : Vulnerabilities in Discrete Attribute Disclosure in the 2021 Canadian Census* [6]
- Workshop: *Sex Differences in Physiology: Mathematical Modelling and Analysis*
- Teaching and leadership experience in CS115/135 (Functional Programming with Racket) and CS231 (Algorithmic Problem Solving with Python)
- Extensive coursework in AI, security and health (8 courses total)

University of British Columbia

Vancouver, BC
2017 - 2021
(Completed)

Undergraduate (Computer Science Honours)

- Honours Thesis on *Federated Data-Integration of Image Data through Heuristics-Based Automated Preprocessing* (supervised by Dr. Ivan Bestchastnikh)
- Extracurricular Positions:
  - nwPlus Communications Director (Hackathon organization)
  - UBC Weightlifting and Powerlifting Sponsorship Director
- Golden Key Honours Society (invited)

AWARDS

2021, 2022, 2023	Math Domestic Graduate Student Award (High Standing)
Fall 2021	University of Waterloo Graduate Scholarship
Spring 2021	Honours (with Distinction) in Computer Science
Winter 2019	John Hopkins MedHacks 2019 Sponsored Competitor
Summer 2017	AP National Scholar
Grades 10, 11, 12	Honours with Distinction
Summer 2016	Ross and Verna Tate Internship Award

1. https://arxiv.org/pdf/2101.07235.pdf
2. Press Release: https://venturebeat.com/2021/01/20/microsofts-felicia-taps-ai-to-enable-health-providers-to-share-data-anonymously/
3. https://link.springer.com/chapter/10.1007/978-3-030-54407-2_20
4. https://sites.ualberta.ca/~denilson/sentiment-analysis-to-help-prevent-cyberbullying.html
5. Press Release: http://edmontonjournal.com/news/local-news/edmonton-teens-develop-smartphone-app-designed-to-curb-cyberbullying?__lsa=4a84-eebf
6. Preprint: https://arxiv.org/abs/2307.13859
7. https://epubs.siam.org/doi/abs/10.1137/23N97565X