PASCALE WALTERS

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SUMMARY OF QUALIFICATIONS

- Working knowledge of Python, MATLAB, Java, JavaScript, C#, C++, Swift, and R programming languages
- Experience using Torch, OpenCV and TensorFlow libraries
- Excellent written and verbal communication skills in English and French
- Knowledge of Microsoft Azure and Amazon Web Services cloud platforms, bash, Apache web servers

EDUCATION

Candidate, Master of Applied Science, Systems Design Engineering, University of Waterloo — June 2019 – Apr. 2021

- Sports Analytics Research Group, Vision and Image Processing Lab
- Courses: Advanced Image Processing, Graphical Deep Learning, Pattern Recognition, Deep Learning and Natural Language Processing

Bachelor of Applied Science, Biomedical Engineering, University of Waterloo, Waterloo, ON — Sept. 2014 – Apr. 2019

- Graduation with distinction, Dean's honours list
- French Minor
- Capstone Project: Real-time image processing using a smartphone to alert cyclists of upcoming vehicles. Implemented using Python, OpenCV, and Swift

EMPLOYMENT EXPERIENCE

Graduate Research and Teaching Assistant, University of Waterloo, Waterloo, ON — June 2019 - Present

- Implemented annotation tools in Python for use by external video analysts to gather ground truth data from video
- Developing novel techniques for sports field localization from broadcast video
- Teaching assistant for MTE 140: Data Structures and Algorithms (Spring 2020)

Undergraduate Research Assistant, Vision and Image Processing Lab, University of Waterloo, Waterloo, ON — Sept. 2018 – Apr. 2019

- Implemented pose estimation and action recognition algorithms for hockey goalies using a pre-trained neural network
- Developed annotation tools in Python for gathering ground truth data from video
- Gathered and preprocessed broadcast and publicly available video for annotation

Scientific Programmer, Molecular Oncology, BC Cancer, Vancouver, BC — Jan. 2018 – Aug. 2018

- Developed pipelines for the analysis of single-cell DNA sequenced data and automation scripts used for launching in the cloud, using python and Microsoft Azure
- Implemented R packages for processing single-cell RNA sequenced data using machine learning techniques with TensorFlow

Undergraduate Research Assistant, Medical Physics, Grand River Regional Cancer Centre, Grand River Hospital, Kitchener, ON — Sept. 2017 – Dec. 2017

- Developed a model of the rectum during radiation treatment of prostate cancer using Python
- Processed patient data to evaluate the accuracy and effectiveness of the model

Summer Student, Medical Physics, Northeast Cancer Centre, Health Sciences North, Sudbury, ON — May 2017 – Aug. 2017

- Processed CT images to track fiducial markers during radiation treatment using MATLAB
- Wrote quality assurance scripts in Python to analyze maintenance data and images for linear accelerators

Analyst - Research Informatics, Information Management Group Centre for Addiction and Mental Health, Toronto, ON — Sept. 2016 – Dec. 2016

- Designed and developed a user interface for integration with the CAMH Neuroinformatics Platform using a Drupal 8 implementation
- Set up a development environment on a CentOS virtual machine
- Created comprehensive reference documentation

Java Developer, Shared Information Management Services, University Health Network, Toronto, ON — Jan. 2016 – Apr. 2016

- Designed and implemented user interface for clinical alerting application using Java, ClojureScript and WebSphere
- Analyzed existing user interfaces to create an optimal design
- Developed detailed reference documentation

PUBLICATIONS

Kanav Vats, Mehrnaz Fani, **Pascale Walters**, David Clausi, John Zelek, Event detection in coarsely annotated sports videos via parallel multi receptive field 1D convolutions, CVSports, June 2020.

Pascale Walters, David Clausi, Alexander Wong, Sports field localization using memory networks, Journal of Computational Vision and Imaging Systems, 5:1, Nov. 2019.

Ernest Osei, **Pascale Walters**, et al., A review of predictive, prognostic and diagnostic biomarkers for brain tumours: towards personalized and targeted cancer therapy, Journal of Radiotherapy in Practice, Nov. 2019.

Allen W. Zhang, Ciara O'Flanagan, Elizabeth A. Chavez, Jamie L. P. Lim, Nicholas Ceglia, Andrew McPherson, Matt Wiens, **Pascale Walters**, et al., Probabilistic cell-type assignment of single-cell RNA-seq for tumor microenvironment profiling, Nature Methods 16:1007-1015, Oct. 2019.

AWARDS AND SCHOLARSHIPS

Finalist, Hack the North, Waterloo, ON — Sept. 2019

Engineering Excellence Master's Fellowship, University of Waterloo, Waterloo, ON — May 2019 – Apr. 2020

President's Research Award, University of Waterloo, Waterloo, ON — Sept. 2018, Sept. 2017