

# Tony Joseph

Toronto – Ontario

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## Qualifications

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- 3+ years of experience in both industry and academia.
- Ability to adapt to various technologies and research new concepts.
- Experience with multiple programming paradigms including object-oriented programming.
- Experience with various machine learning and web development frameworks.
- Excellent analytical and problem solving skills, including the ability to translate analytical findings into actionable recommendations.
- Excellent written and verbal communication skills, with the ability to communicate to both technical and non-technical audiences.
- Experience working with diverse groups and proven to be a reliable and effective team player.

## Technical Skills

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**Programming Languages:** Python, C, C++

**Scientific Software:** MATLAB, Octave, Simulink

**Microsoft Office:** Outlook, PowerPoint, Excel, Word

**Big Data tools:** JupyterLab, GCP-Dataflow, Google-BigQuery

**Web Technologies:** HTML, CSS, JavaScript, gRPC, Django, Django-REST, MySQL, Docker

**Operating Systems:** Windows, Linux, macOS, Linux-Server

**Data Analysis & Machine Learning:** Pandas, Numpy, Scipy, Scikit-learn, OpenCV, Matplotlib  
TensorFlow, PyTorch, PyProb, Pyro, Keras, MLFlow

**Version Control/Workflow Management:** Git, GitHub, GitLab, Apache-Airflow, Argo

**Learning Management System:** Blackboard Learn, eConestoga

## Professional Experience

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**Adjunct Professor**

*Conestoga College*

September 2022–Present

Waterloo, Ontario

- Lectured and communicated effectively with students from diverse backgrounds.
- Maintain regularly scheduled office hours to advise and assist students.
- Update and maintain course materials within learning management system (LMS), eConestoga.
- Graded assignments, projects, & final exams and updated student evaluations on eConestoga.
- Worked with the faculty members in preparation of course syllabus, assignments, and labs.
- Taught the following courses: Programming Concepts using C#, and Information Technology Automation.

## **Machine Learning Engineer**

*Patagona Technologies*

August 2021–Present

Toronto, Ontario

- Developed machine learning models to predict on graph data specifically on social media (text) data for hostile actor detection for information operations.
- Along with the engineering team helped setup the machine learning infrastructure from scratch and developed the core machine learning stack - feature engineering/extraction, classification, and validation.
- Worked with Big-Data and ML tools such as BigQuery, Argo, Airflow and MLFlow to setup end-2-end ML pipelines for running experiments in Google-Cloud and for directly using them in production.
- Worked closely with data-scientist to implement feature engineering.
- Collaborated with the academic partners on research and held reading group meetings on relevant graph machine learning papers.

## **Machine Learning Engineer**

*PLAI LAB, University of British Columbia*

December 2019–July 2021

Vancouver, British Columbia

- Research & develop an Automated Machine Learning (AutoML) system for the lab research spinoff startup.
- Contribute to the frontend website design and incharge of testing & deployment for the AutoML system.
- Implement custom machine learning models based on current research for the DARPA-Data Driven Discovery of Models (D3M) program.
- Participate in coordination calls and manage technical relationships with D3M external team members.
- Translating laboratory research into open-source software, including documenting and maintaining the software repositories.

## **Teaching Assistant**

*University of Ontario Institute of Technology*

September 2016–December 2019

Oshawa, Ontario

- Assisting professors with in-class lessons and lesson plans.
- Taught tutorial sessions and conducted lab sessions.
- Held office hours to ensure students understood the course concepts.
- Conducted review sessions and one-on-one sessions during final exam season.
- Supported students in using Blackboard learn (learning management system), as well as maintaining course materials within this system.
- Graded labs, assignments, midterms, & final exams and updated student marks on Blackboard learn.
- Taught the following courses: Introduction to Programming Using Python, Data Structures using JAVA, Introduction to Computer Vision, and Programming Workshop-2 using C++.

## **Applied Computer Vision Intern**

*SPXTRM Health*

July 2017–November 2017

Toronto, Ontario

- Collaborated with the computer vision engineer and CEO to frame computer vision problems, both algorithmically and within the business context.
- Worked closely with the computer vision engineer to implement computer vision algorithms such as person detection, face-detection, and fall prediction.
- Helped acquire video data for training & validating vision algorithms in real-world long-term care scenarios.
- Created a graphical tool for easier annotation of the collected data.

## Research Associate and Graduate Student

VCLAB, University of Ontario Institute of Technology

September 2016–December 2019

Oshawa, Ontario

- Worked on deep learning research for computer vision tasks using computational attention.
- Worked closely with other graduate students on computer vision research such as multi-digit prediction and image inpainting.
- Gave research paper presentations during the lab reading group.
- Held peer discussions and coding meetup at the lab.
- Provided mentorship to under-graduates and new masters students at the lab.

## Publications

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- [1] JOSEPH, Tony ; DERPANIS, Kosta G. ; QURESHI, Faisal Z.: Joint Spatial and Layer Attention for Convolutional Networks. In: *Proc. of the British Machine Vision Conference (BMVC19)*. Cardiff, Sep 2019, S. 14pp
- [2] JOSEPH, Tony: Joint Spatial and Layer Attention for Convolutional Networks. In: *Electronic Theses and Dissertations (Public)* (2019). <http://hdl.handle.net/10155/1061>
- [3] NAZERI, K. ; NG, E. ; JOSEPH, Tony ; QURESHI, F.Z. ; EBRAHIMI, M.: EdgeConnect: Generative Image Inpainting with Adversarial Edge Learning. In: *Proc. of the International Conference on Computer Vision Workshops (ICCVW19)*. Seoul, Oct 2019, S. 17pp
- [4] YOO, Jason ; JOSEPH, Tony ; YUNG, Dylan ; NASSERI, S. A. ; WOOD, Frank: *Ensemble Squared: A Meta AutoML System*. <https://arxiv.org/abs/2012.05390>. Version: 2020

## Education

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### University of Ontario Institute of Technology

Oshawa, Canada

Master of Science, Computer Science

2016–2019

Relevant Coursework: Computer Vision, Advanced Topics in Information Science, Topics in Digital Media (Machine Learning), and Collaborative Design & Research.

### University of Ontario Institute of Technology

Oshawa, Canada

Bachelor of Engineering, Electrical Engineering

2012–2016

Relevant Coursework: Digital Systems, Electronic Circuit Design, Microprocessors & Computer Architecture, Computer Networks, Digital Signal Processing, Control Systems, Wireless Communications, Applications of Electromagnetics, Power Systems, Fundamentals of Smart Grid.

## Certifications

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Technical Support Fundamentals–Google–Coursera

September 2019

Self-Driving Car Nanodegree–Udacity

December 2017

Machine Learning–Coursera

May 2016

Embedded Systems–University of Texas–Edx

May 2014