

Frank Yu

Vancouver, British Columbia, Canada

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📁 [yu-frank.github.io](https://github.com/yu-frank)

Education

2020 – **University of British Columbia.**

Present *MSc in Computer Science*

Major Scholarships: NSERC CGS-M (\$17,000), BCGS (\$15,000)

Advisor: Professor Helge Rhodin

Areas of Interest: Machine Learning, Deep Learning, Computer Vision, 3D Vision, 3D Pose Estimation, Computational Photography

2015 – 2020 **University of Manitoba.**

BSc in Electrical Engineering with Distinction

Faculty of Engineering Medal in Electrical Eng., President Scholar, Dean's Honor List

GPA: 4.47/4.50

Concentration: Power and Energy Systems Engineering

Capstone Project: "Smart DC Solar Lighting Enclosure for Microgrid Applications"

Publications

ECCV 2020 **Few-Shot Scene-Adaptive Anomaly Detection, Spotlight Paper.**

Yiwei Lu, **Frank Yu**, Mahesh Kumar Krishna Reddy and Yang Wang

Paper available at <https://arxiv.org/abs/2007.07843>

Code available on GitHub: [Here](#)

Research Experience

Summer 2020 **Visiting Researcher at University of British Columbia.**

Supervisor: Professor Helge Rhodin

- Investigated the potential shortcomings of Spatial Transformer Networks (STNs) and how to overcome them using a combination of deep learning and traditional computer vision techniques.
- Utilized Tensorboard to visualize training progression and for hyperparameter tuning
- Scripted Blender to create a custom dataset to use in experiments

Fall 2019 **Undergraduate Research Assistant at University of Manitoba.**

Supervisor: Professor Yang Wang

- Trained an anomaly detection model to detect people falling in RGB-D data
- Implemented, trained, and tested a meta-learning approach for scene adaptive anomaly detection in videos
- Created a custom data loader for performing meta-learning training
- Assisted in writing a paper summarizing the results of the experiments which was accepted to ECCV 2020

Summer 2019 **NSERC Undergraduate Research Assistant.**

Supervisor: Professor Ahmed Ashraf (University of Manitoba)

- Researched different methods/objective functions for anomaly detection using generative adversarial networks (GANs)

Scholarships

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| 2020 | NSERC Canada Graduate Scholarship - Master's Program | \$17,500 |
| 2020 | British Columbia Graduate Scholarship (BCGS) | \$15,000 |
| 2017 - 2019 | NSERC Undergraduate Research Award | \$27,000 |
| 2016, 2017 | University of Manitoba Retention Scholarship | \$8,000 |
| 2019 | Leonard A. Bateman Scholarship for Electrical Engineering Power Option | \$7,225 |
| 2018 | Ernest M. and Margaret Scott Memorial Scholarship | \$5,500 |
| 2018 | Grettir Eggertson Memorial Scholarship | \$3,800 |
| 2016 - 2018 | President Scholarship | \$3,000 |
| 2015 | UM Queen Elizabeth II Entrance Scholarship | \$3,000 |
| 2016 - 2018 | UMSU Scholarship | \$2,200 |
| 2016 | Isbister Scholarship in Engineering | \$2,075 |
| 2017 | Faculty of Engineering Centenary Scholarships | \$2,000 |
| 2019 | MSBI Scholarship Fund | \$1,425 |

Honors and Awards

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|------|---|------------------------|
| 2020 | Faculty of Engineering Medal in Electrical Eng. | |
| 2019 | IEEEExtreme 24-Hour Programming Competition | 1st U of M/6th Canada |
| 2019 | IEEE Winnipeg Section Prize for B.Sc. Design Project | 3rd Place |
| 2018 | IEEEExtreme 24-Hour Programming Competition | 1st U of M/12th Canada |
| 2018 | Canadian Engineering Competition - Debate | 5th Place |
| 2018 | Western Engineering Competition - Debate | 2nd Place |
| 2017 | University of Manitoba Engineering Competition - Debate | 1st Place |
| 2017 | IEEEExtreme 24-Hour Programming Competition | 2nd U of M/17th Canada |

Coursework

- Fall 2019 **ECE4450 - Applied Computational Intelligence, Grade: A+.**
- Introductory course on machine learning techniques which include: decision trees, linear and logistic regression, gradient descent, fully connected, and convolutional neural networks.
 - Gained a basic understanding of probabilistic modelling using maximum likelihood estimation (MLE), bayesian parameter estimation (BPE), and maximum a-posteriori (MAP)
 - Learned the basics of unsupervised learning and implemented principle component analysis (PCA) for an assignment
 - Coursework was completed using scikit-learn and PyTorch libraries

Extracurriculars

- Fall 2019 - **DataCup: Leaders Prize: Fact or Fake News?, Team: MLAIR.**
- Jan 2020 ○ Assisted on a team which tried to identify whether claims were false, partially true or true using neural networks
- Fall 2015 - **United Way Winnipeg: Youth United Committee, Grants Committee Member.**
- Present ○ Volunteered with a committee that oversees the grants that United Way Winnipeg gives out to local youth projects that aim to help the community.