Frank Yu

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Education

2020 – Present **University of British Columbia**.
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 **University of Manitoba Computer Vision Group Member**.
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

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

2020	Faculty of Engineering Medal in Electrical Eng.	
2019	IEEEXtreme 24-Hour Programming Competition	*1st U of M/6th Canada*
2019	IEEE Winnipeg Section Prize for B.Sc. Design Project	*3rd Place*
2018	IEEEXtreme 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	IEEEXtreme 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 - Jan 2020 **DataCup: Leaders Prize: Fact or Fake News?**, *Team: MLAIR*.

- Assisted on a team which tried to identify whether claims were false, partially true or true using neural networks

Fall 2015 - Present **United Way Winnipeg: Youth United Committee**, *Grants Committee Member*.

- Volunteered with a committee that oversees the grants that United Way Winnipeg gives out to local youth projects that aim to help the community.