Frank Yu

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Education

Sept.2020– Present **University of British Columbia**.
MSc in Computer Science
GPA: 97.2%
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

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

Preprint **A-NeRF: Surface-free Human 3D Pose Refinement via Neural Rendering**.
*Shih-Yang Su, **Frank Yu**, Michael Zollhoefer, Helge Rhodin*
Paper

CVPR 2021 **PCLs: Geometry-aware Neural Reconstruction of 3D Pose with Perspective Crop Layers**, *Poster*.
***Frank Yu**, Mathieu Salzmann, Pascal Fua, Helge Rhodin*
Paper | Code

ECCV 2020 **Few-Shot Scene-Adaptive Anomaly Detection**, *Spotlight Paper*.
*Yiwei Lu, **Frank Yu**, Mahesh Kumar Krishna Reddy, Yang Wang*
Paper | Code

Research Experience

Apr.2020– Sept.2020 **Visiting Researcher at University of British Columbia**.
Supervisor: Professor Helge Rhodin

- Research focused on improving state-of-the-art performance in 3D human pose estimation
- 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
- Designed and conducted experiments to evaluate the effectiveness of the removing perspective distortions from input modalities.

Sept.2019– Mar.2020 **Undergraduate Research Assistant at University of Manitoba**.
Supervisor: Professor Yang Wang

- Trained an anomaly detection model to detect people falling in RGB-D data
- Created a custom data loader for performing meta-learning training
- Implemented, trained, and tested a meta-learning approach for scene adaptive anomaly detection in videos

Summer 2019 **NSERC Undergraduate Research Assistant**.
Supervisor: Professor Ahmed Ashraf

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

Teaching Experience

Summer 2021 **TA for CPSC 340 - Machine Learning and Data Mining**.

- Led and created materials for weekly and final exam tutorials to further examine and clarify topics taught throughout the course. Assisted in grading course assignments and the final exam.

Coursework/Projects

Fall 2020 **CPSC 533R - Topics in Computer Graphics/AI**, *Grade: 96%*.

- Focused on state-of-the-art and influencial contributions to the fields of computer vision and graphics using deep learning
- **Course Project**: Leveraged course knowledge and current SOTA research to develop and train a model to perform physically accurate video prediction using VAEs and contrastive learning.

Winter 2021 **CPSC 532S - Topics in Artificial Intelligence**, *Grade: 100%*.

- Focused on applying state-of-the-art deep learning techniques (CNNs, GANs, and Transformers) on multimodal data using PyTorch
- **Course Project** Designed and implemented a pipeline that uses transformers, CNNs, and GANs to generate sign language videos given a multilingual natural language input

Select 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 Engineering	
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	IEEEXtreme 24-Hour Programming Competition	*2nd U of M/17th Canada*