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## education

### **p. hd., electrical engineering (thesis)**

McGill University & MILA, Montréal, Québec, 2020 - Present

Research interests: Generative models for visual content creation, implicit image representations, deep declarative models.

Supervisors: Dr. Derek Nowrouzezahrai and Dr. Christopher J. Pal.

### **m. sc., computer science**

York University, Toronto, Ontario, 2016 - 2018

Thesis: Two-stream convolutional networks for dynamic texture synthesis. (Nominated for best thesis award).

Supervisors: Dr. Marcus A. Brubaker and Dr. Konstantinos G. Derpanis.

### **honours b. sc., computer science (co-op) with minor in mathematics**

Ryerson University, Toronto, Ontario, 2011 - 2016

CGPA: 4.24 / 4.33

## publications

**Tesfaldet, M.**, Snelgrove, X., Vazquez, D., Fourier-CPPNs for Image Synthesis. In ICCV Workshops (Computer Vision for Fashion, Art, and Design), 2019.

Snelgrove, X., **Tesfaldet, M.**, Interactive CPPNs in GLSL. In NeurIPS Workshops (Machine Learning for Creativity and Design), 2018.

**Tesfaldet, M.**, Saftarli, N., Brubaker, M.A., Derpanis, K.G., Convolutional photomosaic generation via multi-scale perceptual losses. In ECCV Workshops (Computer Vision for Fashion, Art, and Design), 2018.

**Tesfaldet, M.**, Brubaker, M.A., Derpanis, K.G., Two-stream convolutional networks for dynamic texture synthesis. In CVPR, 2018.

Presented at:

- ModiFace Inc., 2018. (Invited talk).
- Ryerson Science Literacy Week 2017. (Poster presentation).
- Ryerson GRADShowcase 2017. (Poster presentation).
- International Computer Vision Summer School 2017 (ICVSS). (Poster and oral presentation). (Best presentation award).
- Deep Learning Summer School 2017 (DLSS). (Poster presentation).

## awards & achievements

### **mcgill engineering doctoral award (meda)**

McGill University, Montréal, Québec, Jan 2020 - Jan 2023, 20000 CAD (adjusted from 72000 CAD due to NSERC)

### **vista doctoral scholarship**

York University, Toronto, Ontario, Sept 2018 - Sept 2022, 40000 CAD (stopped Jan 2019)

### **nserc canada graduate scholarships-doctoral (cgs-d)**

York University, Toronto, Ontario, Sept 2018 - Sept 2021, 105000 CAD

### **ontario graduate scholarship (ogs)**

York University, Toronto, Ontario, Sept 2018 - Sept 2019, 15000 CAD (declined in favour of NSERC CGS-D)

### **computer vision for fashion, art, and design artwork award (runner-up)**

ICCV, Munich, Germany, Sept 2018, 1000 EUR

Awarded to the top submitted AI artwork to the ICCV workshop on Computer Vision for Fashion, Art, and Design, as determined by a jury.

<https://computervisionart.com>

### **vector affiliate/fellowship**

Vector Institute, Toronto, Ontario, Feb 2018 - Feb 2020, 4000 CAD

Awarded to top applicants doing research on novel methods or applications in the area of deep learning and/or machine learning.

**best presentation award**

International Computer Vision Summer School (ICVSS), Sicily, Italy, July 2017, 525 EUR

Awarded to the top-3 (out of 60) ranked posters submitted to the summer school. The selected winners are given an opportunity for an oral presentation. <http://iplab.dmi.unict.it/icvss2017/PresentationPrize>

**nserc canada graduate scholarships-master's (cgs-m)**

York University, Toronto, Ontario, April 2017 - April 2018, 17500 CAD

**ontario graduate scholarship (ogs)**

York University, Toronto, Ontario, April 2017 - April 2018, 15000 CAD (declined in favour of NSERC CGS-M)

**york graduate scholarship**

York University, Toronto, Ontario, Sept 2016, 6000 CAD

Awarded to top-ranked applicants in the first year of study based on their academic merit.

**nserc undergraduate student research award**

Ryerson University, Toronto, Ontario, May 2016 - August 2016, 11295 CAD

**sony canada charitable foundation scholarship**

Ryerson University, Toronto, Ontario, 2014 - 2015, 1500 CAD

Presented to a student currently enrolled in fourth year of the Computer Science program on a full-time basis with a clear academic standing; must have the highest CGPA at the end of the third year.

**sudharakan aerath memorial award**

Ryerson University, Toronto, Ontario, 2013 - 2014, 200 CAD

Presented to a student currently enrolled full-time in Computer Science and who has the highest overall standing in Mathematics in the first four semesters.

**department of computer science award**

Ryerson University, Toronto, Ontario, 2013 - 2014

Presented to the three students with the strongest academic performance in second year.

**alumni award**

Ryerson University, Toronto, Ontario, 2013 - 2014

For best overall performance in CPS 213 Computer Organization I and CPS 310 Computer Organization II.

**james h. ratray memorial award**

Ryerson University, Toronto, Ontario, 2012 - 2013, 200 CAD

Awarded for academic excellence in first year.

**faculty of science dean's list**

Ryerson University, Toronto, Ontario, 2012 - 2016

Maintained a GPA above 3.5 during the academic year.

**queen elizabeth II aiming for the top scholarship**

Ryerson University, Toronto, Ontario, 2011 - 2014, 14000 CAD

Awarded for outstanding academic achievement upon secondary school graduation.



### **top entrance scholarship**

Ryerson University, Toronto, Ontario, 2011 - 2014, 16000 CAD  
Awarded for entering Ryerson University with an average above 95%.

### **ryerson scholar**

Ryerson University, Toronto, Ontario, 2011 - 2012  
Recognition for entering Ryerson University as an Ontario Scholar.

### **summer schools attended**

#### **international computer vision summer school (ICVSS)**

Sicily, Italy, July 2017

#### **deep learning and reinforcement learning summer school (DLSS/RLSS)**

Université de Montréal, Montréal, Québec, June 2017 - July 2017

### **work experience**

#### **research intern**

Element AI, Montréal, Québec, Jan 2019 - Jan 2020  
Published Fourier-CPPNs for Image Synthesis. Researched few-shot generative models for image synthesis.

#### **research assistant (nserc usra)**

Ryerson University, Toronto, Ontario, May 2016 - August 2016  
Researched computer vision applications using machine learning under the supervision of Dr. Konstantinos G. Derpanis.

#### **software developer**

D2L, Toronto, Ontario, January 2015 - August 2015  
Helped design and develop solutions for enhancing the learning experience in the corporate workspace.

#### **software developer**

RL Solutions, Toronto, Ontario, May 2014 - August 2014  
Responsible for designing and developing product administration tools; supported the Product Development team with troubleshooting. Developed a migration tool supporting large-scaled data migration for clients upgrading from the legacy product to the latest version.

#### **research assistant**

Ryerson University, Toronto, Ontario, January 2014 - April 2014  
Researched under Dr. Alireza Sadeghian and collaborated with St. Michael's Hospital in ideating surgery-assistance software solutions with Google Glass and Microsoft Kinect.

#### **software developer**

Desire2Learn Inc., Toronto, Ontario, May 2013 - August 2013  
Developed a comment and rating system for the Integration & Extensibility team's application store. Helped maintain and develop an online application store for clients to easily locate and install extensions to their Learning Management Systems.

### **volunteer experience**

#### **organizer**

Fifth Workshop on Machine Learning for Creativity and Design, Online, NeurIPS, Dec 2021

Machine Learning: An Introduction to Python, Eastern Bloc, Montréal, Québec, May 2021

Fourth Workshop on Machine Learning for Creativity and Design, Online, NeurIPS, Dec 2020

Resistance AI Workshop, Online, NeurIPS, Dec 2020



Machine Learning: An Introduction to Python, Eastern Bloc, Montréal, Québec, Feb 2020

Second Black in AI Workshop, NeurIPS, Montréal, Québec, Dec 2018.

#### **reviewer**

ICCV 2021, Virtual, Oct 2021

First Workshop on Ethical Considerations in Creative Applications of Computer Vision (E3CV), Virtual, CVPR, Jun 2021

Second Workshop on Computer Vision for Fashion, Art, and Design (CVFAD), Seoul, Korea, ICCV, Oct 2019

First Workshop on Computer Vision for Fashion, Art, and Design (CVFAD), Munich, Germany, ECCV, Sept 2018

#### **founding member**

Hydrogen @ Element AI, Jan 2019

Hydrogen is a collective of researchers and creatives aiming to explore the intersection of human creativity and artificial intelligence. First public event - Hydrogen One.

#### **black in ai member**

Black in AI, 2017 - present

Engaging with the black AI community in sharing ideas, fostering collaborations, and discussing initiatives to increase the presence of black people in the field of AI. Helping to seek funding for the Black in AI workshop at NIPS 2018.

#### **ml ensemble 002/003**

ML Ensemble, Toronto, Ontario, Jan 2018 / Jun 2018

ML Ensemble is a one-day meeting for machine learning researchers and practitioners to learn from each other. In charge with setting up and operating the PA system.

#### **director of science**

Ryerson Students' Union, Toronto, Ontario, May 2015 - May 2016

The Board of Directors is the representative body for all full-time undergraduate and all graduate students at Ryerson University. Ensure that the concerns of students from individual faculties and programs are well represented at the RSU.

#### **vice-president careers & outreach**

Ryerson Computer Science Course Union, Toronto, Ontario, May 2015 - May 2016

Consult with the Co-op Program Director on issues identified by members with the co-op program. Act as a liaison between the Office of Co-operative Education, the Career Centre, the Office of Science Outreach and Enrichment and the organization. Help plan and organize career oriented events in consultation with the Vice President Operations and Events.

#### **tutor**

Pointers Homework Help Club, Toronto, Ontario, September 2014 - December 2014

Led the Ryerson Computer Science Course Union's "Pointers" Homework Help Club for 1st and 2nd Year Computer Science students looking for help in their Math and/or Computer Science courses.



#### 4th year representative

Ryerson Computer Science Course Union, Toronto, Ontario, May 2014 – January 2015

Acted as a liaison and representative between the fourth-year students and the faculty. Responsible for effectively communicating the wishes and concerns of the students to the faculty.

#### published artworks & other artistic collaborations

**LaRochelle, L.,** Shadpey, R., Tesfaldet, M., QT.Bot – Sitting Here With You in the Future, 2020.

Presented at:

- MUTEK AI Art Lab 2020. MUTEK festival, Online, 2020.
- MUTEK Distant Arcades 2020. MUTEK festival, Online, 2020.
- QT.Bot | Lucas LaRochelle – Residency Presentation. Ada X, Montréal, Québec, 2020.

**Tesfaldet, M.,** Snelgrove, X., Latent Space Interpolation, 2019.

Presented at:

- METAMORPHOSIS Exhibition. ELEKTRA festival & Arsenal Contemporary Art Gallery, Online, 2020.
- Human Learning – What Machines Teach Us. Centre Culturel Canadien, Paris, France, 2020.