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## education

### Ph. D., Electrical Engineering (thesis)

McGill University & Mila, Montréal, Canada, 2020 - Present.

Research interests: neural art, differentiable image parameterizations, differentiable self-organizing systems.

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

### M. Sc., Computer Science

York University, Toronto, Canada, 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, Canada, 2011 - 2016.

CGPA: 4.24 / 4.33

## publications

**Tesfaldet, M.**, Nowrouzezahrai, D., Pal, C. Attention-based Neural Cellular Automata. In NeurIPS, 2022.

**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

### FRQNT B2X Doctoral Research Scholarship

McGill University, Montréal, Canada, Apr 2022 - Jan 2025, 56000 CAD.

### McGill Engineering Doctoral Award (MEDA)

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

### Vista Doctoral Scholarship

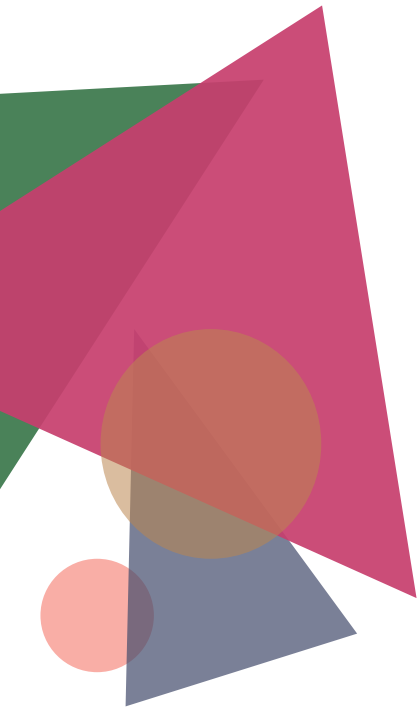
York University, Toronto, Canada, Sept 2018 - Sept 2022, 40000 CAD (stopped Jan 2019).

### NSERC Canada Graduate Scholarships-Doctoral (CGS-D)

York University, Toronto, Canada, Sept 2018 - Sept 2021, 105000 CAD.

### Ontario Graduate Scholarship (OGS)

York University, Toronto, Canada, 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, Canada, 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, Jul 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, Canada, Apr 2017 - Apr 2018, 17500 CAD.

**Ontario Graduate Scholarship (OGS)**

York University, Toronto, Canada, Apr 2017 - Apr 2018, 15000 CAD (declined in favour of NSERC CGS-M).

**York Graduate Scholarship**

York University, Toronto, Canada, 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 (NSERC USRA)**

Ryerson University, Toronto, Canada, May 2016 - Aug 2016, 11295 CAD.

**Sony Canada Charitable Foundation Scholarship**

Ryerson University, Toronto, Canada, 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, Canada, 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, Canada, 2013 - 2014.

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

**Alumni Award**

Ryerson University, Toronto, Canada, 2013 - 2014.

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

**James H. Rattray Memorial Award**

Ryerson University, Toronto, Canada, 2012 - 2013, 200 CAD.

Awarded for academic excellence in first year.



### **Faculty of Science Dean's List**

Ryerson University, Toronto, Canada, 2012 - 2016.

Maintained a GPA above 3.5 during the academic year.

### **Queen Elizabeth II Aiming for the Top Scholarship**

Ryerson University, Toronto, Canada, 2011 - 2014, 14000 CAD.

Awarded for outstanding academic achievement upon secondary school graduation.

### **Top entrance scholarship**

Ryerson University, Toronto, Canada, 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, Jul 2017.

#### **Deep Learning and Reinforcement Learning Summer School (DLSS/RLSS)**

Université de Montréal, Montréal, Canada, Jun 2017 - Jul 2017.

### **work experience**

#### **Research intern**

Element AI, Montréal, Canada, 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, Canada, May 2016 - Aug 2016.

Researched computer vision applications using machine learning under the supervision of Dr. Konstantinos G. Derpanis.

#### **Software developer**

D2L, Toronto, Canada, Jan 2015 - Aug 2015.

Helped design and develop solutions for enhancing the learning experience in the corporate workspace.

#### **Software developer**

RL Solutions, Toronto, Canada, May 2014 - Aug 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, Canada, Jan 2014 - Apr 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**

D2L, Toronto, Canada, May 2013 - Aug 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 (lead), Online, NeurIPS, Dec 2021

Machine Learning: An Introduction to Python (lead), Eastern Bloc, Montréal, Canada, 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 (lead), Eastern Bloc, Montréal, Canada, Feb 2020.

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

### **Reviewer**

Computer Vision and Image Understanding (CVIU) journal, Jul 2022.

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.

### **Advisor**

IN\_SITU: a research study to evaluate & address the digital challenge of co-creation between the arts and artificial intelligence, Mitacs, Canada, Jan 2022.

### **Committees served**

IT committee, Mila, Montréal, Canada, Jun 2021 - present.

### **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**

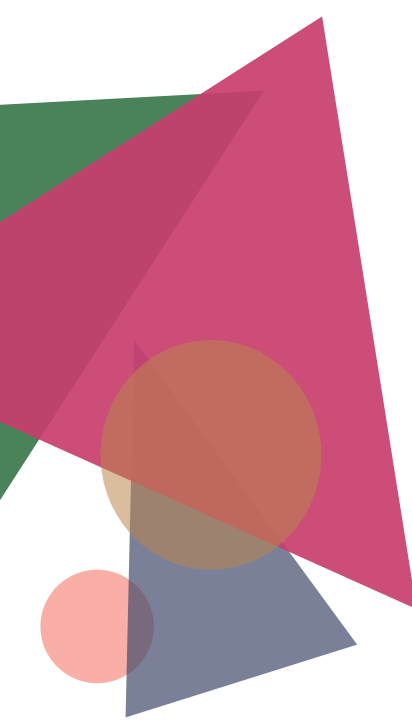
Black in AI, 2017 - present.

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, Sept 2014 - Dec 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 - Jan 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, Canada, 2020.

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

Presented at:

- [METAMORPHOSIS - METAVERSE Exhibition](#). ELEKTRA, Online, 2022.
- [Human Learning - What Machines Teach Us](#). Kiasma, Castelnau-le-Lez, France, 2022.
- [METAMORPHOSIS Exhibition](#). ELEKTRA festival & Arsenal Contemporary Art Gallery, Montréal, Canada, 2020.
- [Human Learning - What Machines Teach Us](#). Centre Culturel Canadien, Paris, France, 2020.