mattie tesfaldet

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education

Ph. D., Electrical Engineering (thesis)
McGill University & Mila, Montréal, Canada, 2020 - Present.
Research interests: nature-inspired artificial intelligence, differentiable self-organization, neural dynamical systems, collective intelligence, emergent phenomena, generative modeling with/of complex 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
Toronto Metropolitan University, Toronto, Canada, 2011 - 2016.
CGPA: 4.24 / 4.33

summer schools attended

International Computer Vision Summer School (ICVSS)
Sicily, Italy, Jul 2017.

Deep Learning and Reinforcement Learning Summer School
Université de Montréal, Montréal, Canada, Jun 2017 - Jul 2017.

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.

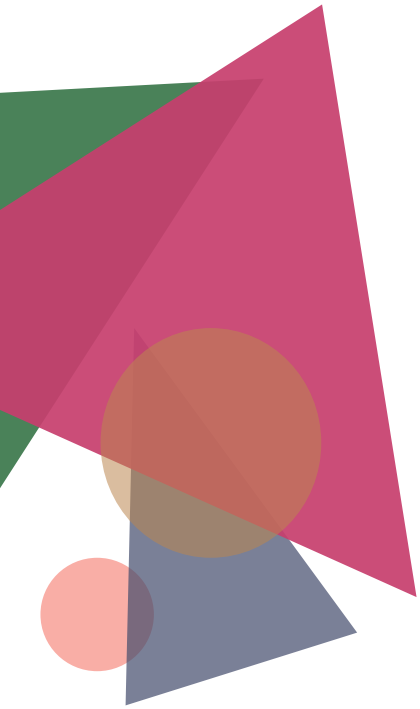
Tesfaldet, M., Brubaker, M.A., Derpanis, K.G. Two-stream convolutional networks for dynamic texture synthesis. In CVPR, 2018.

work experience

PhD Visiting Researcher
Meta, Montréal, Canada, Dec 2022 - Dec 2023.
Researched score-based generative modeling with neural cellular automata under the supervision of Dr. Adriana Romero-Soriano.

Research Intern
Element AI (currently ServiceNow Research as of Nov 2020), Montréal, Canada, Jan 2019 - Jan 2020.
Researched compositional pattern producing networks and few-shot generative adversarial networks under the supervision of Dr. David Vazquez and Xavier Snelgrove. Published “Fourier-CPPNs for Image Synthesis” at the CVFAD Workshop at ICCV 2019. This work also led to the creation of “Latent Space Interpolation,” an art piece showcased at the Canadian Cultural Centre in Paris and numerous other venues.

Research Assistant (NSERC USRA)
Toronto Metropolitan University, Toronto, Canada, May 2016 - Aug 2016.
Researched computer vision applications using machine learning under the supervision of Dr. Konstantinos G. Derpanis.



Software Developer Intern
D2L, Toronto, Canada, Jan 2015 - Aug 2015.

Software Developer Intern
RL Solutions, Toronto, Canada, May 2014 - Aug 2014.

Research Assistant
Toronto Metropolitan University, Toronto, Canada, Jan 2014 - Apr 2014.

Software Developer Intern
D2L, Toronto, Canada, May 2013 - Aug 2013.

volunteer service

Secretary General of Mila Lab Representatives
Mila, Montréal, Canada, Sept 2022 - Dec 2022.
Secretary General of the Lab Representatives of Mila—a body of student representatives of Mila that act as a liaison between students, Mila administration, and Mila professors.

Workshop Organizing
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.

Reviewing
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.

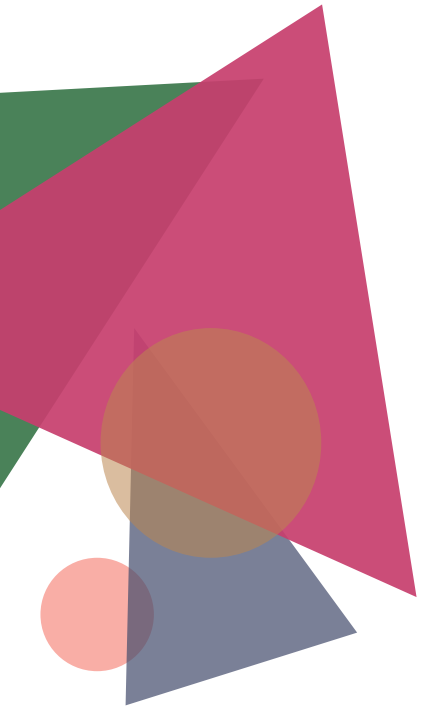
Consulting
IN_SITU: a research study to evaluate & address the digital challenge of co-creation between the arts and artificial intelligence, Mitacs, Canada, Jan 2022.

Chair of Mila IT Committee
IT committee, Mila, Montréal, Canada, Jun 2021 - Dec 2022.

Black in AI Volunteer
Black in AI, 2017 - present.

Director of Science
Toronto Metropolitan Students' Union, Toronto, Ontario, May 2015 - May 2016.

Vice-President Careers & Outreach
Toronto Metropolitan Computer Science Course Union, Toronto, Ontario, May 2015 - May 2016.



4th Year Student Representative
Toronto Metropolitan Computer Science Course Union, Toronto, Ontario, May 2014 - Jan 2015.

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

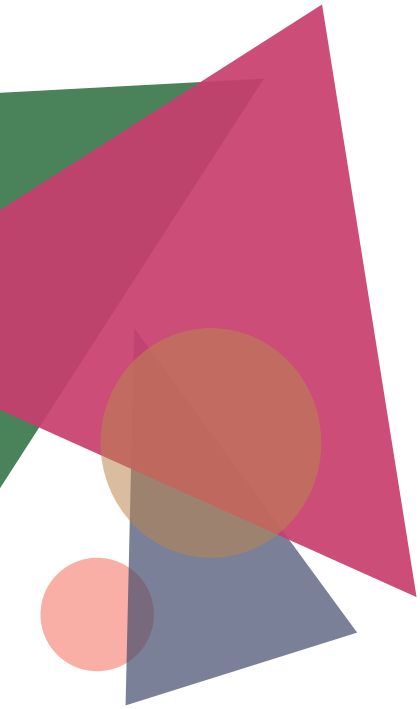
NSERC Canada Graduate Scholarships-Master's (CGS-M)
York University, Toronto, Canada, Apr 2017 - Apr 2018, 17500 CAD.

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)
Toronto Metropolitan University, Toronto, Canada, May 2016 - Aug 2016, 11295 CAD.

Sony Canada Charitable Foundation Scholarship
Toronto Metropolitan 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
Toronto Metropolitan 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
Toronto Metropolitan University, Toronto, Canada, 2013 - 2014.
Presented to the three students with the strongest academic performance in second year.

Alumni Award
Toronto Metropolitan University, Toronto, Canada, 2013 - 2014.
For best overall class performance in CPS 213 Computer Organization I and CPS 310 Computer Organization II.

James H. Rattray Memorial Award
Toronto Metropolitan University, Toronto, Canada, 2012 - 2013, 200 CAD.
Awarded for academic excellence in first year.

Faculty of Science Dean's List
Toronto Metropolitan University, Toronto, Canada, 2012 - 2016.
Maintained a GPA above 3.5 during the academic year.

Queen Elizabeth II Aiming for the Top Scholarship
Toronto Metropolitan University, Toronto, Canada, 2011 - 2014, 14000 CAD.
Awarded for outstanding academic achievement upon secondary school graduation.

Top entrance scholarship
Toronto Metropolitan University, Toronto, Canada, 2011 - 2014, 16000 CAD.
Awarded for entering Toronto Metropolitan University with an average above 95%.

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

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.