

MORTEZA REZANEJAD

PERSONAL

Homepage: <https://mrezanejad.github.io/>

Email: morteza.rezanejad@utoronto.ca

Address: 521 Sidney Smith Hall, 100 St. George Street, Toronto, Ontario, Canada

GitHub: <https://github.com/mrezanejad>

Google Scholar: <https://scholar.google.ca/citations?user=bpj7d8EAAAAJ>

Last update of this CV: May 17th, 2021

CURRENT APPOINTMENTS

Postdoctoral Fellow*, University of Toronto

Jan. 2020 - Present

Project title: “Understanding the Principles that Guide the Perceptual Grouping and Organization of Visual Cues in Perception”

Advisors: Professor Dirk Bernhardt-Walther and Professor Michael Gruninger

** University of Toronto Arts & Science Postdoctoral Fellowship Recipient, 2020*

Role description: I am leading the Pixels to Propositions (Pix2Props) research team. Our team works on visual perception problems in collaboration with the Department of Computer Science, Psychology, and Mechanical & Industrial Engineering at the University of Toronto.

Advisory Board Member, The Dexion Studio

Sept. 2019 - Present

Role description: I am a scientific advisory board member at the Dexion Studio (<https://thedexionstudio.com/>) and I am also a cofounder of Penplay (<https://penplay.ca/>), an ML based iOS game from the dexion studio.

EDUCATION

Ph.D. in Computer Science, McGill University

Sept. 2013 - Oct. 2019

Thesis: “Medial Measures for Recognition, Mapping, and Categorization”

Advisor: Professor Kaleem Siddiqi

Available on Google Books: <https://bit.ly/2RkE6M0>

Mini-MBA, McGill University

Sept. 2018 - Jan 2019

Executive Development Course (EDC)

I was awarded Clark SELF Scholarship to attend this series of executive development course.

M.Sc. in Computer Science, McGill University

*Sept. 2009 - May 2013 **

Thesis: “Flux Graphs for 2D Shape Analysis”

Advisor: Professor Kaleem Siddiqi

Available on McGill’s Library: <https://bit.ly/3bC7m8q>

** I was on a leave of absence from May 2011 to May 2012, working as an iOS developer for Neda Rayaneh.*

B.Sc. in Computer Engineering, Sharif University of Technology

Sept. 2005 - July 2009

Thesis: “Online Signature Verification Using Symbiotic Feature Selection”

Advisor: Professor Saeed Bagheri Shouraki & Professor Ramin Halavati

Undergraduate Trainee and Research Assistant

Oct. 2007 - Aug. 2009

Computer Vision Group, Institute for Research in Fundamental Science (IPM)

Project title: “Automatic Detection of Melanoma”

Advisor: Professor Mehrdad Shahshahani

PREVIOUS WORK EXPERIENCE

Research Engineer

July. 2017 - Nov. 2017

Software Group, NeuroRX

Role description: In this project, I worked on an automated quality assessment of Magnetic Resonance Images. I implemented a deep learning based framework that was able to find missing 3D MRI scan slices as well as determining whether a slice is misplaced within the neighboring slices.

iOS Developer

July. 2011 - May 2012

iOS Team, Neda Rayaneh Institute

Role description: I was involved in the development of two iOS-based applications: i) Chare which is a mobile user interface to the first Persian online shopping store, ii) iPersia which is a tourist guide for iPad users who want to access professional photographers' landscapes before visiting a place.

Part-time Software Developer

Sept. 2006 - July 2009

Software Group, Kavosh Com Soroush

Role description: I was part of a project whose goal was to localize a web-based CRM for the Iranian market. We deployed extreme Programming as our development methodology and were successful at localizing several features of the vTiger CRM.

TEACHING EXPERIENCE

Lecturer, University of Toronto

May. 2020 - Dec. 2020

Introduction to Image Understanding

Department: Electrical & Computer Engineering

Academic Session(s): Summer 2020, Fall 2020

Lecturer, University of Toronto

Jan. 2020 - April 2020

APS 105 - Computer Fundamentals

Department: Electrical & Computer Engineering

Academic Session(s): Winter 2020

Lecturer, McGill University

Sept. 2015 - Jan. 2016

COMP 208 - Computers in Engineering

Department: School of Computer Science

Academic Session(s): Fall 2015

Teaching Assistant, McGill University

Jan. 2013 - April 2017

COMP 558 - Computer Vision

Department: School of Computer Science

Academic Session(s): Winter 2017, Winter 2015, Fall 2013, Winter 2013

Teaching Assistant, McGill University

Fall. 2017 - Dec. 2018

ECSE 202 - Introduction to Software Development

Department: Electrical and Computer Engineering

Academic Session(s): Winter 2019, Fall 2018, Winter 2018, Fall 2017

Teaching Assistant, McGill University

Jan. 2014 - Dec. 2018

COMP 208 - Computers in Engineering

Department: School of Computer Science

Academic Session(s): Fall 2019, Winter 2019, Fall 2018, Winter 2018, Fall 2017, Fall 2016, Winter 2016, Fall 2015, Fall 2014, and Winter 2014

Teaching Assistant, Sharif University of Technology

Jan. 2008 - Apr. 2008

CE 121 - Electrical Circuits

Department: Computer Engineering

Academic Session(s): Winter 2007

Teaching Assistant, Sharif University of Technology

Jan. 2007 - Apr. 2007

CE 115b - Discrete Mathematics

Department: Computer Engineering

Academic Session(s): Winter 2007

Teaching Assistant, Sharif University of Technology

Sept. 2008 - Dec. 2008

MATH 22071 - Numerical Computing

Department: Mathematical Science

Academic Session(s): Fall 2008

Teaching Assistant, Sharif University of Technology

Sept. 2007 - Dec. 2007

MATH 22046 - Calculus I

Department: Mathematical Science

Academic Session(s): Fall 2007

PUBLICATIONS

Journal articles

1. S.A. McDowell, R.B. Luo, A. Arabzadeh, S. Doré, N.C. Bennett, V. Breton, E. Karimi, **M. Rezanejad**, R.R. Yang, K.D. Lach, M.S. Issac, 2021. Neutrophil oxidative stress mediates obesity-associated vascular dysfunction and metastatic transmigration. *Nature Cancer* (2021), pp.1-18.
2. J. Wilder, **M. Rezanejad**, S. Dickinson, K. Siddiqi, A. Jepson and D. Bernhardt-Walther. Local contour symmetry facilitates scene categorization. *Cognition* 182 (2019): 307-317.
3. **M. Rezanejad** and K. Siddiqi. View Sphere Partitioning via Flux Graphs Boosts Recognition from Sparse Views. *Frontiers in ICT: Computer Image Analysis* 2 (2015) 24.

Conference articles and abstracts

4. C-O Dufresne Camaro, **M. Rezanejad**, S. Tsogkas, K Siddiqi, and S. Dickinson. Appearance Shock Grammar for Fast Medial. To appear in *IEEE International Conference on Computer Vision and Pattern Recognition*, Seattle WA, 2020 (CVPR 2020).
5. **M. Rezanejad**, G. Downs, J. Wilder, D. Bernhardt-Walther, A. Jepson, S. Dickinson, and K. Siddiqi. Medial Axis Based Contour Saliency for Scene Categorization. *IEEE International Conference on Computer Vision and Pattern Recognition*, Long Beach CA, 2020 (CVPR 2019).
6. **M. Rezanejad**, G. Downs, J. Wilder, D. Bernhardt-Walther, A. Jepson, S. Dickinson, and K. Siddiqi. Perceptually Weighted Contours For CNN-Based Scene Categorization. *Conference on Cognitive Computational Neuroscience*, Berlin, Germany, September 2019.
7. J. Wilder, **M. Rezanejad**, K. Siddiqi, A. Jepson, S. Dickinson, and D. Bernhardt-Walther. Local contour symmetry facilitates the neural representation of scene categories in the PPA. *Conference on Cognitive Computational Neuroscience*, Berlin, Germany, September 2019.
8. **M. Rezanejad**, G. Downs, J. Wilder, D. Bernhardt-Walther, S. Dickinson, A. Jepson and K. Siddiqi. Perceptual grouping aids recognition of line drawings of scenes by CNNs. *Vision Science Society*, St. Pete Beach, United States, 2019.
9. J. Wilder, **M. Rezanejad**, K. Siddiqi, A. Jepson, S. Dickinson, and D. Bernhardt-Walther. The neural basis of local contour symmetry in scene perception. *Vision Science Society*, St. Pete Beach, United States, 2019.

10. J. Wilder⁺, **M. Rezanejad**⁺, K. Siddiqi, S. Dickinson, A. Jepson and D. Bernhardt-Walther. Measuring Local Symmetry in Real-World Scenes. In *Journal of Vision*, 18 (2018) 749–749.
⁺: Equal contribution.
11. **M. Rezanejad**, J. Wilder, K. Siddiqi, S. Dickinson, A. Jepson, and D. Bernhardt-Walther. Measuring Local Symmetry in Real-World Scenes Using Derivatives of the Medial Axis Radius Function. In *Computational and Mathematical Models in Vision (MODVIS)*, St. Pete Beach, United States, 2018.
12. J. Wilder, **M. Rezanejad**, S. Dickinson, A. Jepson, K. Siddiqi and D. Bernhardt-Walther. The Perceptual Advantage of Symmetry for Scene Perception. In *Journal of Vision*, 17 (2017) 1091–1091.
13. J. Wilder, **M. Rezanejad**, S. Dickinson, A. Jepson, K. Siddiqi and D. Bernhardt-Walther. The role of symmetry in scene categorization by human observers. In *Computational and Mathematical Models in Vision (MODVIS)*, St. Pete Beach, United States, 2017.
14. **M. Rezanejad**, J. Wilder, S. Dickinson, A. Jepson, D. Bernhardt-Walther and K. Siddiqi. Scoring Scene Symmetry. In *Computational and Mathematical Models in Vision (MODVIS)*, St. Pete Beach, United States, 2017.
15. S. Hong, J. Fishbaugh, **M. Rezanejad**, K. Siddiqi, H. Johnson, J. Paulsen, E. Y. Kim and G. Gerig. Subject-Specific Longitudinal Shape Analysis by Coupling Spatiotemporal Shape Modeling with Medial Analysis. In *Proc SPIE Int Soc Opt Eng*, 10133(2017) 101331A. 28966430[pmid].
16. **M. Rezanejad**, B. Samari, I. Rekleitis, K. Siddiqi and G. Dudek. Robust environment mapping using flux skeletons. In *2015 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pp. 5700–5705.

Book and book chapters

17. **M. Rezanejad** and K. Siddiqi. Flux graphs for 2D shape analysis. Chapter 3 in *Shape Perception in Human and Computer Vision: An Interdisciplinary Perspective*. Editors: Sven Dickinson and Zygmunt Pizlo, Springer, 2013.
18. **M. Rezanejad**, A. Mokhtarian, M. Zaeri Amirani and M. Mohammadabadi. Mathematics Olympiad in Iran. ISBN: 9789647685962, Publisher: Danesh Pajouhan Javan.

AWARDS AND HONOURS

2021 Elsevier/Vision Research Award VSS2021, St. Pete Beach, Florida, United States	March. 2021
Arts & Science Postdoctoral Fellowship University of Toronto, Toronto, Canada	March. 2020
GREAT Travel Award School of Computer Science, McGill University, Montreal, Canada	Sept. 2019
Mini-MBA Clark SELF Scholarship Desautels Faculty of Management, McGill University, Montreal, Canada	Sept. 2018 - Jan. 2019
Second Best Poster Award NSERC CREATE Medical Image Analysis - Industrial Partner Day, Montreal, Canada	March 2018
Grad Excellence Award x 3 School of Computer Science, McGill University, Montreal, Canada	July 2015, July 2016, and Jan. 2018

IEEE RAS/IES IROS Travel Award Institute of Electrical and Electronics Engineers (IEEE), Hamburg, Germany	Oct. 2015
K40 Tesla GPU Award NVIDIA Corporation, Santa Clara, USA	Oct. 2014
McGill Differential Fee Waiver Award x 3 Faculty of Science, McGill University, Montreal, Canada	July 2010, July 2013, and July 2014
National Elite Foundation Award Ministry of Education, Tehran, Iran	Nov. 2007
Ranked 154th in the National University Entrance Examination Among more than 400,000 participants, National Organization of Educational Test, Tehran, Iran	Aug. 2005
Bronze Medal in 22nd Iranian National Mathematics Olympiad National Organization for Development of Exceptional Talents, Tehran, Iran	Sept. 2004
Prize winner of the 5th Kharazmi Youth Festival Iranian Research Organization for Science and Technology, Tehran, Iran	Oct. 2003

TECHNICAL STRENGTHS

Computer Languages	Python, C/C++, Java, MATLAB, Objective-C, HTML
Operating Systems	Windows, Mac, Linux, iOS, Free BSD, Unix
Frameworks & IDEs	Eclipse, PyCharm, vim, xCode, Visual Studio, Keras, Tensorflow, Robot Operating System (ROS), OpenCV, QT
Typesetting	T _E X, L ^A T _E X, Microsoft Office

RELEVANT GRADUATE COURSES

Computer Vision	Machine Learning
Computer Graphics	Advanced Mobile Robotics
Probabilistic Analysis of Algorithms	Shape Analysis
Applied Machine Learning (audited)	Matrix Computations
Algorithmic Game Theory	Statistical Computer Vision (audited)

PEER REVIEW ACTIVITIES

CVPR (2021)
 ICCV (2021)
 ECCV Conference (2014)
 CCN (2019)
 IET Computer Vision (2014)
 CRV Conference (2016, 2018, 2019, 2020, & 2021)

SELECTED PRESENTATIONS AND INVITED TALKS

3D Medial Representations for Shape Analysis
 CREATE MIA Summer School, Montreal, Canada, May 2016

Object Representation using 2D and 3D Medial Axes
 CIM Student Research Showcase, Montreal, Canada, November 2016

The role of symmetry in scene categorization by human observers
 CREATE-MIA Retreat, Montreal, Canada, September 2016

Robust Environment Mapping Using Flux Skeletons
 IROS Conference, Hamburg, Germany, September 2015

View Sphere Partitioning via Flux Graphs

CIM Student Research Showcase, Montreal, Canada, March 2015

Online Signature Verification Using Genetic Algorithm

Institute For Research in Fundamental Science (IPM), Tehran, Iran, September 2008

Automated Melanoma Recognition Using Computer Generated Features

Institute For Research in Fundamental Science (IPM), Tehran, Iran, May 2008

LANGUAGE SKILLS

English: Fluent, **Persian:** Native, **French:** Intermediate, **Arabic:** Intermediate

MENTORSHIP

Chandra Gummaluru	<i>Aug. 2020 - Present</i>
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Sidharth Gupta	<i>Aug. 2020 - Present</i>
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Ryan Marten	<i>Aug. 2020 - March 2021</i>
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Amir Mousavi,	<i>May 2020 - Feb. 2021</i>
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Gabriel Downs*,	<i>May. 2018 - Dec. 2018</i>
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* joint supervision with Professor Kaleem Siddiqi

REFERENCES

Will be provided upon request.