MORTEZA REZANEJAD

PERSONAL

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Last update of this CV: May 17^{th}, 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 Dexign Studio *Sept. 2019 - Present*
Role description: I am a scientific advisory board member at the Dexign Studio (https://thedexignstudio.com/) and I am also a cofounder of Penplay (https://penplay.ca/), an ML based iOS game from the dexign 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/2RkE6MO

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 Salience 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 March. 2021
VSS2021, St. Pete Beach, Florida, United States

Arts & Science Postdoctoral Fellowship March. 2020
University of Toronto, Toronto, Canada

GREAT Travel Award Sept. 2019
School of Computer Science, McGill University, Montreal, Canada

Mini-MBA Clark SELF Scholarship Sept. 2018 - Jan. 2019
Desautels Faculty of Management, McGill University, Montreal, Canada

Second Best Poster Award March 2018
NSERC CREATE Medical Image Analysis - Industrial Partner Day, Montreal, Canada

Grad Excellence Award x 3 July 2015, July 2016, and Jan. 2018
School of Computer Science, McGill University, Montreal, Canada

IEEE RAS/IES IROS Travel Award Oct. 2015
Institute of Electrical and Electronics Engineers (IEEE), Hamburg, Germany

K40 Tesla GPU Award Oct. 2014
NVIDIA Corporation, Santa Clara, USA

McGill Differential Fee Waiver Award x 3 July 2010, July 2013, and July 2014
Faculty of Science, McGill University, Montreal, Canada

National Elite Foundation Award Nov. 2007
Ministry of Education, Tehran, Iran

Ranked 154^{th} in the National University Entrance Examination Aug. 2005
Among more than 400,000 participants, National Organization of Educational Test, Tehran, Iran

Bronze Medal in 22^{nd} Iranian National Mathematics Olympiad Sept. 2004
National Organization for Development of Exceptional Talents, Tehran, Iran

Prize winner of the 5^{th} Kharazmi Youth Festival Oct. 2003
Iranian Research Organization for Science and Technology, Tehran, Iran

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	TEX, LATEX, Microsoft Office

RELEVANT GRADUATE COURSES

Computer Vision
Computer Graphics
Probabilistic Analysis of Algorithms
Applied Machine Learning (audited)
Algorithmic Game Theory
Machine Learning
Advanced Mobile Robotics
Shape Analysis
Matrix Computations
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 *Aug. 2020 - Present*

Sidharth Gupta *Aug. 2020 - Present*

Ryan Marten *Aug. 2020 - March 2021*

Amir Mousavi, *May 2020 - Feb. 2021*

Gabriel Downs*, *May. 2018 - Dec. 2018*
joint supervision with Professor Kaleem Siddiqi

REFERENCES

Will be provided upon request.