

EHSAN GANJIDOOST

COMPUTER SCIENTIST · NEURAL NETWORK & MACHINE LEARNING SCIENTIST

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Education

University of Waterloo

PH.D. IN COMPUTER SCIENCE

- Thesis: Predictive Estimators and Perceptual Feedback Networks

Waterloo, Canada

Sep. 2016 - present

University of Waterloo

MMATH. IN COMPUTATIONAL MATHEMATICS

- Thesis: On Preconditioning the Linearized Conjugate Gradient method for Sparse Nonlinear Optimization.

Waterloo, Canada

Sep. 2014 - Aug. 2015

Iran University of Science & Technology

M.SC. IN COMPUTER ENGINEERING

- Thesis: Study of Cache Structure and its Impact on the Performance of Network Processors

Tehran, Iran

Sep. 2002 - Mar. 2005

Shahid Beheshti University

B.SC. IN COMPUTER ENGINEERING

- Thesis: Wireless Client/server System

Tehran, Iran

Sep. 1997 - Mar. 2002

Certificates (short-listed)

AI & Machine Learnin Machine Learning, DeepLearning Specialization, NLP Specialization, Tensorflow

Computer Science Algorithm Design I & II, Intro to Databases, mongoDB

Finance WatRISQ, Corporate Finance, Finance, Financial Accounting

Teaching Fundamentals of University Teaching, Certificate in University Teaching

Academic Activities

PUBLICATIONS

2020	Ganjidoost E. , “Capturing Variations on Generative Predictive Coding”	pending NeurIPS
2019	Ganjidoost E. , “Notes on Neural Networks Part 3: Credit Assignment Problem”	under review
2019	Ganjidoost E. , “Notes on Neural Networks Part 2: Biological Adaptive Neural Networks”	under review
2019	Ganjidoost E. , “Notes on Neural Networks Part 1: Artificial Neural Networks”	under review
2017	Ganjidoost E. , Orchard J., “Non-linear mapping in a neural network using predictive coding” (research paper)	UofW
2017	Ganjidoost E. , Orchard J., “Predictive coding framed with neuron engineering framework” (research paper)	UofW
2005	Ganjidoost E. , Akbari A., “Impact of cache structure on network processor performance” (oral)	CESC
2004	Ganjidoost E. , Gharegouzi A., Akbari A., “Improvement speech quality by noise detection and elimination using averaged algorithm” (research paper)	IUST
2003	Ganjidoost E. , Fathy M., “Computer Architecture, A Quantitative Aproach - Memory Hierarchy Design” (translation)	IUST

PRESENTATION

Win 2020	“Pandas’ Essential Tutorial” , @ Neurocomgnitive Computing Lab	Waterloo, ON
Win. 2020	“On Predictive Coding” , @ Neurocomgnitive Computing Lab	Waterloo, ON
Spr. 2019	“Generative Neural Networks” , @ The 12th Annual Ottawa Mathematics Conference (OMC)	Waterloo, ON
Apr. 2005	“Impact of Cache Structure on Network Processor Performance” , @ The 7th Computer Engineering Student Conference (CESC)	Tehran, Iran
Apr. 2004	“Ad-hoc Network Architecture” , @ IUST, Grad Seminar Series	Tehran, Iran
Apr. 2003	“Rollback Recovery Policy in Operating System” , @ IUST, Grad Seminar Series	Tehran, Iran
Dec. 2003	“Computer Networks Performance Modeling” , @ IUST, Grad Seminar Series	Tehran, Iran

Awards & Recognitions

INSTITUTIONAL, ACADEMIC

2016-20	Receipient , Math Domestic Graduate Student Award (\$20,000)	Waterloo, ON
2017-18	Receipient , Walter Metzger Memorial Award (\$5,250)	Waterloo, ON
2016-17	Receipient , University of Waterloo Graduate Scholarship (\$5,000)	Waterloo, ON
2015-20	Receipient , UW Graduate Research Studentship (\$26,500)	Waterloo, ON
2014-15	Receipient , UW Math Faculty Graduate Award (\$6,000)	Waterloo, ON
2014-15	Receipient , UW Mathematics Graduate Experience Award (\$3,000)	Waterloo, ON

PROVINSIONAL, LEADERSHIP

2007	Receipient , Tehran City Council Award (Gold prize)	Tehran, Iran
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NATIONAL, ACADEMIC

2016-17	Selected , University of Waterloo's NSERC nominie	Waterloo, ON
2002	Top 0.1% , National Entrance Exam for Grad School	Tehran, Iran
1997	Top 0.1% , National Entrance Exam	Tehran, Iran
1996	2nd round , National Computer & Mathematic Olympiad	Tehran, Iran

Professional Technical Skills

Advanced Programming	Python, MATLAB, R, C/C++, Java, JavaScript, Node.js, Processing, Gephi, OWL, HTML, LaTeX, Jekyll,
Most Used Packages	Numpy, Scikit-learn, Pandas, PyViz, PyTorch, Tensorflow, Jax, Matplotlib
Database	SQL, DTD, XML, XSD, XQuery, XSLT, UML, OLAP, JSON, mongoDB

Projects (short-listed)

Deep Learning Arch.	PCNet, CNN, ResNet, AlexNet, LSTM, Recommender system, VAE, GAN
Optimization	fleet scheduling
Finance	portfolio optimizer package

Research Experience

Neurocognitive Computing Lab

GRADUATE RESEARCHER

- Generative Predictive Coding.
- Portfolio optimizer
- Neural Network Platform with Spiking Neurons.
- Neural Network based on real-time, Dynamical System.

Waterloo, ON
Sep. 2016 - present

University of Waterloo

RESEARCH ASSISTANT & DEVELOPER

- Nonlinear optimization solver.
- Large-scale continuous optimization solver.
- TSP heuristic using edge elimination techniques.

Waterloo, ON
May. 2014 - Sep. 2016

Cayuga Research

RESEARCHER

- Logistic & Transportation Allocation.

Waterloo, ON
May. 2014 - Sep. 2014

ITRC

RESEARCH ASSISTANT

- Network processor architecture.

Tehran, Iran
Mar. 2004 - Mar. 2005

Educational Activities

University of Waterloo

TEACHING ASSISTANT

CS 486/686: Introduction to AI
CS 475/675: Computational Linear Algebra
CS 489/689: Neural Networks
CS 370: Numerical Computation
CS 240: Data Structure & Data Management
CS 136: Algorithm Design & Data Abstraction
CS 135: Designing Functional Programs

Waterloo, Canada

Sep. 2016 - present
W19, S19, F19, W20, S20
S18
W18
F17, F18
S17
W17
F16

University of Waterloo

TUTORIAL

Math 127: Calculus I for Science
Math 115: Linear Algebra for Engineering
Math 135: Algebra for Honor Math

Waterloo, Canada

Sep. 2014 - May 2015
W15
F14
F14

R&D Experience

Marsuscom co.

COMPUTER ENGINEER

- System & Code Developer.
- Smart Home Control System Developer.

Tehran, Iran

Nov. 2009 - Sep. 2011

PARMAN

TECHNICAL PROGRAMM

- Fiber Optic Network TX/RX STM-1 test and verification engineer.

Tehran, Iran

Jun. 2009 - Nov. 2009

PARSTEL Telecom co.

COMPUTER ENGINEER

- Code Developer for STN-10K Switch.
- Hardware designer and embedded programmer for line card.

Tehran, Iran

Jun. 2007 - Jun. 2009

VESAL co. ISP

COMPUTER ENGINEER INTERN

- Computer Networking.
- Design, Implement and troubleshooting network.

Tehran, Iran

Jun. 2000 - Sep. 2000

Extracurricular Activity

NAMA co. - startup

Co-FOUNDER & VIDEO EDITOR

- Documentary producer, video editor.
- Teaser producer for Advertisement.

Tehran, Iran

Jun. 2003 - Sep. 2007

Imam Hadi Charity.

VOLUNTEER VIDEO EDITOR

- Video production process using special effects, video editing, and producing documentary.

Tehran, Iran

Jun. 2003 - Sep. 2003

Soroush High School.

INSTRUCTOR AND TRAINER

- Teaching Fundamental of Computer Programming.
- Teaching Video Editing in Summer School.

Tehran, Iran

Sep. 1997 - Sep. 2003

Hobbies

Sport Activities

swimming, soccer, ping-pong, biking, and hiking

Usual Habit

listening traditional/country music, watching (documentary/adventure/romance) movies.

To-Do list

photography, astronomy, traveling (specially road trip), driving Race cars