EHSAN GANJIDOOST

PH.D. CANDIDATE IN COMPUTER SCIENCE · WITH SPECIALTY IN DEEP LEARNING & MACHINE LEARNING

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Education

University of Waterloo   *Waterloo, Canada*

PH.D. IN COMPUTER SCIENCE   *Sep. 2016 - present*

• Thesis: Predictive Estimators and Perceptual Feedback Networks

University of Waterloo   *Waterloo, Canada*

MMATH. IN COMPUTATIONAL MATHEMATICS   *Sep. 2014 - Aug. 2015*

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

Iran University of Science & Technology   *Tehran, Iran*

M.SC. IN COMPUTER ENGINEERING   *Sep. 2002 - Mar. 2005*

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

Shahid Beheshti University   *Tehran, Iran*

B.SC. IN COMPUTER ENGINEERING   *Sep. 1997 - Mar. 2002*

• Thesis: Wireless Client/server System

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

PROVINCIAL, LEADERSHIP

2007	**Recepient**, Tehran City Council Award (Gold prize)	*Tehran, Iran*

NATIONAL, ACADEMIC

2016-17	**Selected**, University of Waterloo's NSERC nominiee	*Waterloo, ON*
2002	**Top 0.1%**, National Enterance Exam for Grad School	*Tehran, Iran*
1997	**Top 0.1%**, National Enterance 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, Keras, Jax, Matplotlib
Database	SQL, DTD, XML, XSD, XQuery, XSLT, UML, OLAP, JSON, mongoDB
IDE, Editor	PyCharm, IPython, Colab, Sublime, Atom, CodeVisionAVR

Projects (short-listed)

Unsupervised Models	AE, VAE, GAN, Predictive Coding, Recommender system
Supervised Models	**CNNs** (LeNet, AlexNet, VGGNet, ResNet, Inception)
Sequence Models	**RNNs** (LSTM, GRU), Time Series
Optimization	fleet scheduling
Finance	portfolio optimizer package

Research Experience

Neurocognitive Computing Lab *Waterloo, ON*

DOCTORAL RESEARCHER *Sep. 2016 - present*

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

University of Waterloo *Waterloo, ON*

RESEARCH ASSISTANT & DEVELOPER *May. 2014 - Sep. 2016*

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

Cayuga Research *Waterloo, ON*

RESEARCHER *May. 2014 - Sep. 2014*

- Logistic & Transportation Allocation.

ITRC *Tehran, Iran*

RESEARCH ASSISTANT *Mar. 2004 - Mar. 2005*

- Network processor architecture.

Educational Activities

University of Waterloo
Waterloo, Canada

TEACHING ASSISTANT
Sep. 2016 - present

CS 486/686: Introduction to AI | W19, S19, F19, W20, S20
CS 475/675: Computational Linear Algebra | S18
CS 489/689: Neural Networks | W18
CS 370: Numerical Computation | F17, F18
CS 240: Data Structure & Data Management | S17
CS 136: Algorithm Design & Data Abstraction | W17
CS 135: Designing Functional Programs | F16

University of Waterloo
Waterloo, Canada

TUTORIAL
Sep. 2014 - May 2015

Math 127: Calculus I for Science | W15
Math 115: Linear Algebra for Engineering | F14
Math 135: Algebra for Honor Math | F14

R&D Experience

Marsuscom co.
Tehran, Iran

COMPUTER ENGINEER
Nov. 2009 - Sep. 2011

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

PARMAN
Tehran, Iran

TECHNICAL PROGRAMM
Jun. 2009 - Nov. 2009

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

PARSTEL Telecom co.
Tehran, Iran

COMPUTER ENGINEER
Jun. 2007 - Jun. 2009

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

VESAL co. ISP
Tehran, Iran

COMPUTER ENGINEER INTERN
Jun. 2000 - Sep. 2000

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

Extracurricular Activity

NAMA co. - startup
Tehran, Iran

CO-FOUNDER & VIDEO EDITOR
Jun. 2003 - Sep. 2007

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

Imam Hadi Charity.
Tehran, Iran

VOLUNTEER VIDEO EDITOR
Jun. 2003 - Sep. 2003

- Video production process usig speciall effects, video edditing, and producing documentary.

Soroush High School.
Tehran, Iran

INSTRUCTOR AND TRAINER
Sep. 1997 - Sep. 2003

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

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