

Hamide Vosoughpour

Curriculum Vitae

615 Coldstream Dr
Waterloo ON N2V 2H3, Canada
✉ hvosough@uwaterloo.ca
🌐 hamide.vosoughpour.org

Research Interests

- ▶ Computational Geometry, Graph Theory, and Algorithms
- ▶ Cognitive Science and Concept Learning
- ▶ Machine Learning and Pattern Recognition,

Education

- 2011 till present **PhD Student**, *Cheriton School of Computer Science - University of Waterloo, Waterloo, Canada*, GPA: 87/100.
- 2004–2007 **M.Sc. in Computer Engineering - Artificial Intelligence and Robotics**, *University of Tehran, Tehran, Iran*, GPA: 16.8/20.
Thesis: “Learning Mobile Robot Navigation Based on Hierarchical Concept Learning,” under supervision of Dr. Majid Nili Ahmadabadi, accepted with score 18/20
- 2000–2004 **B.Sc. in Computer Engineering - Hardware Engineering**, *Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran*, GPA: 16.9/20.
Thesis: “Implementation of Automated Routing Methods for Asynchronous Circuits Wiring,” under supervision of Dr. Hossein Pedram, accepted with score 19/20
- 1999 **Diploma in Mathematics and Physics**, *Farzanegan High School, Tehran, Iran*, National Organization for Development of Exceptional Talents (NODET), GPA: 19.3/20.

Research Experiences

- 2011 till present **Algorithm and Complexity Group**, *Cheriton School of Computer Science - University of Waterloo*, Research assistant under supervision of Prof. Anna Lubiw.
Cops and Robbers game, Polygon Visibility, Morphing
- 2005–2007 **Artificial Intelligence and Robotics Laboratory**, *Department of Electrical and Computer Engineering - University of Tehran*, Graduate researcher under supervision of Dr. M. Nili Ahmadabadi.
Researching on Reinforcement Learning and Hierarchical Knowledge Abstraction methods
- 2004–2006 **Machine Learning Group**, *Sepanta Robotics Research Foundation*, Senior Researcher.
Researching on Persian Optical Character Recognition, Persian Spell-Checker and Stemmer, and application of Data Mining methods in Fraud Detection
- 2002–2004 **Robotics Research Center**, *Department of Computer Engineering and IT - Amirkabir University of Technology*, Undergraduate researcher under supervision of Dr. M. K. Akbari.
Researching on Distributed AI and Multi-Agent Systems using RoboCup Rescue Simulation as test-bed
- Summer 2003 **Iran Telecommunication Research Center**, Undergraduate researcher under supervision of Dr. M. Lotfizad.
Researching on Hardware Description Languages
- 2002 **Youth Robotics Club**, Undergraduate researcher under supervision of Mr. Shahab Javanmardi.
Researching on Distributed AI and Multi-Agent Systems using RoboCup Rescue Simulation as test-bed

Related Work Experiences

External Referee for Conferences

2013 **25th Canadian Conference on Computational Geometry (CCCG)**, *Waterloo, ON, Canada.*

2014 **26th Canadian Conference on Computational Geometry (CCCG)**, *Halifax, NS, Canada.*

Teaching

Fall 2013 **CS245 - Logic and Computation**, *Cheriton School of Computer Science - University of Waterloo.*

Instructional Apprentice (IA)

2011 till present **Various Courses (CS115, CS245, CS341, CS360)**, *Cheriton School of Computer Science - University of Waterloo.*

Teaching Assistant

Software Developer

2007–2011 **Nebras Informatics Company**, *Tehran, Iran*, Full-time.

Member of Designers and Developers Group Working on Vertical Development and Workflow Projects Teams

Presentations

June 2013 **Cops and Robbers in a Polygon**, Memorial University of Newfoundland.

4th biennial Canadian Discrete and Algorithmic Mathematics Conference (CanaDAM)

August 2014 **Visibility Graphs, Dismantlability, and the Cops and Robbers Game**, Halifax, Nova Scotia Canada.

26th Canadian Conference on Computational Geometry (CCCG)

Awards and Achievements

2004 **1st Place (Top 0.01%)**, *9th Iranian National Student Olympiad - Computer Engineering.*
National Organization for Educational Testing (NOET)

2004 **3rd Place (Top 0.03%)**, *National M.Sc. Entrance Exam - Computer Engineering - Artificial Intelligence.*

National Organization for Educational Testing (NOET)

2004 **Special Award from International Society of Control Engineers (SICE) in Rescue Simulation League**, *8th International RoboCup Competitions - Rescue Simulation League*, Lisbon - Portugal.

As a member of team S.O.S.

2003 **3rd Place**, *7th International RoboCup Competitions - Rescue Simulation League*, Padua - Italy.

As a member of team S.O.S.

2003 **Honorable Mention, 27th ACM ICPC - World Finals**, *Beverly Hills - USA (Missed the Event).*

As a member of team Minerva. Top 2% of teams selected from 1329 universities in 68 countries

2002 **Honorable Mention, 26th ACM ICPC - World Finals**, *Honolulu - Hawaii - USA (Missed the Event).*

As a member of team Minerva. Top 3% of teams selected from 1300 universities in 67 countries

2000 **330th Place (Top 0.05%)**, *National B.Sc. Entrance Exam - Mathematics and Physics.*
National Organization for Educational Testing (NOET)

1999 **Silver Medal**, *8th Iran Nationwide Olympiad in Informatics.*
Young Scholars Club (YSC)

1998 **Bronze Medal**, *9th Iran Nationwide Olympiad in Informatics.*
Young Scholars Club (YSC)

Publications

- [1] A. Lubiw and H. Vosoughpour, "Visibility graphs, dismantlability, and the cops and robbers game," in *Proceedings of the 26th Canadian Conference on Computational Geometry, CCCG 2014, Halifax, Nova Scotia, Canada, 2014*.
- [2] F. Barrera-Cruz, T. Biedl, M. Derka, S. Kiazzyk, A. Lubiw, and H. Vosoughpour, "Turning orthogonally convex polyhedra into orthoballs," in *Proceedings of the 26th Canadian Conference on Computational Geometry, CCCG 2014, Halifax, Nova Scotia, Canada, 2014*.
- [3] K. Bibak, C. Liu, H. Vosoughpour, G. Yao, Z. AlMeraj, A. Pytel, W. Cowan, and S. Mann, "Implicit surfaces seminar, spring 2012," University of Waterloo - Cheriton School of Computer Science, Tech. Rep., September 2013.
- [4] M. Nili Ahmadabadi, H. Vosoughpour, B. N. Araabi, N. Zaare, and A. Mousavi, "Hierarchical concept representation and learning in functional space for reinforcement learning agents," 2010, submitted to Journal of Neural Computation.
- [5] H. Vosoughpour, M. Nili Ahmadabadi, M. S. Mirian, and B. N. Araabi, "Hierarchical functional concept formation using reinforcement learning," in *Proceeding of WCECS 2007*, S. I. Ao, C. Douglas, W. S. Grundfest, L. Schruben, and X. Wu, Eds., International Association of Engineers. San Francisco, USA: Newswood Limited, October 2007.
- [6] H. Vosoughpour, M. Nili Ahmadabadi, and B. N. Araabi, "Abstract functional concept learning using reinforcement learning," in *Proceeding of ISFS 2007*, Mashhad, Iran, August 2007.
- [7] R. Zakeri, M. Salmani, M. Izadi, and H. Vosoughpour, "Technical solutions for soccer simulation 3D," in *Proceedings of the 12th International CSI Computer Conference (CSICC'06)*, Tehran, Iran, 2007.
- [8] S. Amirpour, B. Behsaz, M. Izadi, H. Janzadeh, F. Molazem, A. Rahimi, M. Tavakoli, and H. Vosoughpour, "S.O.S. 2004: An attempt towards a multi agent rescue team," in *RoboCup-2004: Robot Soccer World Cup VIII*, D. Nardi, M. Riedmiller, and C. Sammut, Eds. Berlin: Springer Verlag, 2004.
- [9] S. Javanmardi, F. Molazem, M. Namazifar, A. Rahimi, H. Vosoughpour, M. Izadi, B. Behsaz, M. Tavakoli, H. Janzadeh, S. Amirpour, and P. Jaferian, "Team description of S.O.S. 2003," in *RoboCup-2003: Robot Soccer World Cup VII*, D. Polani, B. Browning, A. Bonarini, and K. Yoshida, Eds. Berlin: Springer Verlag, 2003.

Main Passed Courses

- Fall 2014 **Algorithms for Shortest Path**, by Prof. A. Lubiw, Cheriton School of Computer Science - University of Waterloo.
In progress
- Spring 2013 **Computational Geometry**, by Prof. T. Chan, Cheriton School of Computer Science - University of Waterloo.
Audited
- Spring 2012 **Advanced Topics in Graphics: Implicit Surfaces**, by Prof. S. Mann, Cheriton School of Computer Science - University of Waterloo.
Grade: 88/100
- Winter 2012 **Advanced Topics in Algorithms: Parameterized Algorithms**, by Prof. N. Nishimura, Cheriton School of Computer Science - University of Waterloo.
Grade: 96/100
- Fall 2004 **Fuzzy Systems and Fuzzy Control**, by Dr. B. N. Araabi, Department of Electrical and Computer Engineering - University of Tehran.
Grade: 16.5/20
- Fall 2004 **Bio-Computing**, by Prof. C. Lucas, Department of Electrical and Computer Engineering - University of Tehran.
Grade: 20/20

- Spring 2005 **Image Processing and Machine Vision**, by *Dr. B. N. Araabi*, Department of Electrical and Computer Engineering - University of Tehran.
Grade: 16/20
- Fall 2005 **Pattern Recognition**, by *Dr. B. N. Araabi*, Department of Electrical and Computer Engineering - University of Tehran.
Grade: 18/20
- Fall 2005 **Control of Stochastic Systems (Game Theory)**, by *Dr. A. Rahimikian*, Department of Electrical and Computer Engineering - University of Tehran.
Grade: 20/20

Skills

- Programming**
- ▶ Proficient in C/C++, C#/.NET Framework/Mono, Pascal, and MATLAB. Familiar with Java/J2SE.
 - ▶ Proficient in Object-Oriented Software Development.
 - ▶ Proficient in design and implementation of Artificial Neural Networks, Fuzzy Systems, Reinforcement Learning Methods, Genetic Algorithms and Evolutionary Systems, and Multi-Agent Systems.
 - ▶ Proficient in Logical Design of Relational Databases. Familiar with MySQL and Microsoft SQL Server.
 - ▶ Proficient in VHDL and Verilog.
- Operating Systems** WINDOWS and LINUX (As end-user, administrator, and programmer).
- Typesetting** Proficient in L^AT_EX and Microsoft Word.