

# Aida Nematzadeh

✉ [nematzadeh@berkeley.edu](mailto:nematzadeh@berkeley.edu)  
🌐 [www.cs.toronto.edu/~aida](http://www.cs.toronto.edu/~aida)

5431 Tolman Hall, #1650  
Berkeley, CA 94720-1650

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## Research Interests

**Computational cognitive science, computational linguistics, machine learning.**

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## Education

- 1/2010–7/2015 **PhD in Computer Science**, *University of Toronto*, Canada.  
*Thesis Title:* Computational Modeling of Word Learning: The Role of Cognitive Processes  
*Advisor:* Suzanne Stevenson  
*Committee:* Afsaneh Fazly, Graeme Hirst, and Richard Zemel
- 9/2008–1/2010 **MSc in Computer Science**, *University of Toronto*, Canada.  
*Research paper:* The Role of Statistical Evidence in Child Acquisition of Multiword Verbs  
*Advisor:* Suzanne Stevenson
- 9/2003–8/2007 **BSc in Computer Engineering**, *Amirkabir University of Technology*, Iran.  
*Thesis Title:* An Unsupervised Approach for Tagging Numbers in Farsi

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## Research Experience

- 1/2016–present **Postdoctoral Researcher**, *UC Berkeley*.  
*Advisor:* Tom Griffiths
- 8/2015–12/2015 **Postdoctoral Researcher**, *University of Toronto*.  
*Advisor:* Suzanne Stevenson
- 1/2013–7/2013 **Visiting Student Researcher**, *UC Berkeley*.  
*Mentor:* Tom Griffiths  
*Project:* A mathematical analysis of computational models of word learning.
- 3/2013–7/2013 **Part-time Researcher**, *International Computer Science Institute*, Berkeley, CA.  
*Mentors:* Srinu Narayanan and Behrang Mohit  
*Project:* Automatic extraction of Farsi metaphors (part of the MetaNet project).
- 9/2011–12/2011 **Software Engineering Intern**, *Google Research*, Mountain View, CA.  
*Mentor:* Marius Pasca  
*Project:* Automatic generation of superordinate categories for Wikipedia pages.

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## Awards and Honors

- 2016 **Invited to *Rising Stars in EECS: Academic Career Workshop for Women*.**
- 2015–2017 **NSERC Postdoctoral Fellowship (Declined)**, *Natural Sciences and Engineering Research Council of Canada*, \$90,000 CAD.  
Ranked 3rd out of 43 applicants in Computing Sciences
- 2015 **Invited to *Rising Stars in EECS: Academic Career Workshop for Women*, (Could not attend).**
- 2014–2015 **Ontario Graduate Scholarship**, *Canada*, \$15,000 CAD.
- 2015 **C. C. Gotlieb Graduate Fellowship**, *Dept. of Computer Science, U. of Toronto*, \$500 CAD.

- 2014 **Glushko Travel Grant**, *34th Annual Conference of the Cognitive Science Society*, \$500.  
Awarded to students based on the quality of their accepted papers.
- 2013–2014 **Ontario Graduate Scholarship**, *Canada*, \$15,000 CAD.
- 2008–2015 **Graduate Student Fellowship**, *University of Toronto*, \$22,000 CAD/year.
- 2007 **High honor student**, *Computer Engineering Dept., Amirkabir U. of Technology*.  
Graduated in the top 10% of my class (107 students). Direct admission to the MSc program without national entrance exam.
- 2005 **Honorable Mention in the Regional ACM-ICPC**, *Tehran, Iran*.  
Member of a team (*After Eight*) representing Amirkabir University of Technology.
- 2003 **Ranked in the top 0.1% in the national university exam, Iran**.  
Gold coin awarded for excellent performance in the exam (with half a million participants) by Amirkabir University of Technology.
- 2002 **Second place in the fourth Khwarizmi Youth Festival, Iran**.

## Publications

- E. Grant, **A. Nematzadeh**, and T. Griffiths (2017). “How Can Memory-Augmented Neural Networks Pass a False-Belief Task”. In: *To appear in the proceedings of the 39th Annual Conference of the Cognitive Science Society*.
- A. Nematzadeh**, B. Beekhuizen, S. Huang, and S. Stevenson (2017). “Calculating Probabilities Simplifies Word Learning”. In: *To appear in the proceedings of the 39th Annual Conference of the Cognitive Science Society*.
- A. Nematzadeh**, S. Meylan, and T. Griffiths (2017). “Evaluating Vector-Space Models of Word Representation”. In: *To appear in the proceedings of the 39th Annual Conference of the Cognitive Science Society*.
- E. Grant, **A. Nematzadeh**, and S. Stevenson (2016). “The Interaction of Memory and Attention in Novel Word Generalization: A Computational Investigation”. In: *Proceedings of the 38th Annual Conference of the Cognitive Science Society*. Philadelphia, PA.
- A. Nematzadeh**, F. Miscevic, and S. Stevenson (2016). “Simple Search Algorithms on Semantic Networks Learned from Language Use”. In: *Proceedings of the 38th Annual Conference of the Cognitive Science Society*. Philadelphia, PA.
- A. Nematzadeh**, E. Grant, and S. Stevenson (2015). “A Computational Cognitive Model of Novel Word Generalization”. In: *Proceedings of the 2015 Conference on Empirical Methods in Natural Language Processing (EMNLP)*. Lisbon, Portugal: ACL, pp. 1795–1804.
- A. Nematzadeh**, A. Fazly, and S. Stevenson (2014a). “A Cognitive Model of Semantic Network Learning”. In: *Proceedings of the 2014 Conference on Empirical Methods in Natural Language Processing (EMNLP)*. Doha, Qatar: ACL, pp. 244–254.
- A. Nematzadeh**, A. Fazly, and S. Stevenson (2014b). “Structural Differences in the Semantic Networks of Simulated Word Learners”. In: *Proceedings of the 36th Annual Conference of the Cognitive Science Society*. Quebec City, Canada, pp. 1072–1077.
- B. Beekhuizen, A. Fazly, **A. Nematzadeh**, and S. Stevenson (2013). “Word Learning in the Wild: What Natural Data Can Tell Us”. In: *Proceedings of the 35th Annual Conference of the Cognitive Science Society*. Berlin, Germany, pp. 1857–1862.
- A. Nematzadeh**, A. Fazly, and S. Stevenson (2013a). “Child Acquisition of Multiword Verbs: A Computational Investigation”. In: *Cognitive Aspects of Computational Language Acquisition*. Ed. by T. Poibeau, A. Villavicencio, A. Korhonen, and A. Alishahi. Springer, pp. 235–256.
- A. Nematzadeh**, A. Fazly, and S. Stevenson (2013b). “Desirable Difficulty in Learning: A Computational Investigation”. In: *Proceedings of the 35th Annual Conference of the Cognitive Science Society*. Berlin, Germany, pp. 1073–1078.

- A. Nematzadeh**, A. Fazly, and S. Stevenson (2012a). “A Computational Model of Memory, Attention, and Word Learning”. In: *Proceedings of the 3rd Workshop on Cognitive Modeling and Computational Linguistics (CMCL 2012)*. Montreal, Canada: ACL, pp. 80–89.
- A. Nematzadeh**, A. Fazly, and S. Stevenson (2012b). “Interaction of Word Learning and Semantic Category Formation in Late Talking”. In: *Proceedings of the 34th Annual Conference of the Cognitive Science Society*. Sapporo, Japan, pp. 2085–2090.
- A. Nematzadeh**, A. Fazly, and S. Stevenson (2011). “A Computational Study of Late Talking in Word-Meaning Acquisition”. In: *Proceedings of the 33th Annual Conference of the Cognitive Science Society*. Boston, Massachusetts, pp. 705–710.
- A. Fazly, **A. Nematzadeh**, and S. Stevenson (2009). “Acquiring multiword verbs: The role of statistical evidence”. In: *Proceedings of the 31st Annual Conference of the Cognitive Science Society*. Amsterdam, The Netherlands, pp. 1222–1227.

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## Invited Talks

- 2017 **Language Learning and Representation in Humans and Computers.**  
 Machine Learning Department, CMU  
 Network Science Institute, Northeastern University  
 Department of Linguistics, UT Austin  
 The Language Lab (TedLab), MIT  
 Language and Cognition Lab, Stanford
- 2016 **Understanding Language Acquisition through Computational Modeling.**  
 Cognitive and Information Sciences, UC Merced  
 Department of Linguistics, UC Davis
- 2016 **Computational Models of Natural Language Learning and Processing.**  
 Computer Science Department, Purdue University
- 2014 **Modeling Word Learning, Memory, and Attention.**  
 Language and Cognitive Development Lab, UCLA  
 Language Development Lab, USC
- 2013 **A Computational Model of Memory, Attention, and Word Learning.**  
 Language and Cognition Lab, Stanford University

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## Professional Activities

- 2012 & 2014–2016 **Undergraduate Student Supervision, Dept. of Computer Science, U. of Toronto.**  
 Filip Miscevic (9/2015–8/2016)  
 Erin Grant (5/2014–8/2016)  
 Brent Mombourquette (5/2012–8/2012)
- 9/2008–5/2015 **Teaching Assistant, Dept. of Computer Science, U. of Toronto.**  
 CSC485: Computational Linguistics (Fall 2014)  
 CSC401: Natural Language Computing (Winter 2012, Winter 2014)  
 CSC263: Data Structures and Analysis (Winter 2015)  
 CSC180: Introduction to Computer Programming (Fall 2008, Fall 2009, Fall 2010)  
 CSC148: Introduction to Computer Science (Winter 2011, Fall 2012, Summer 2013, Fall 2013)  
 CSC108: Introduction to Computer Programming (Winter 2011, Summer 2012)  
 CSC104: The Why and How of Computing (Winter 2009, Winter 2010)
- 9/2005–5/2007 **Teaching Assistant, Computer Engineering Dept., Amirkabir U. of Technology, Iran.**  
 Multimedia Systems (Winter 2007)  
 Principles of Compiler Design (Winter 2007 and Fall 2006)  
 Operating Systems (Winter 2006)  
 Design of Algorithms (Winter 2006)  
 Data Structure and Algorithms (Fall 2006 and Fall 2005)  
 Principles of Computer and Programming (Fall 2005)
- 5/2006–11/2006 **Software Engineering Intern, Data Processing Company, Tehran, Iran.**

2005–2006 **RoboCup Rescue Simulation Team Member**, *Robotic Research Center, Amirkabir University of Technology, Iran.*

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## Service

2015–2017 **Program Committee.**

EMNLP 2017; ACL 2017; EACL 2017; CMCL 2017; EMNLP 2016; ACL 2016; CoNLL 2015; ACL 2015; CMCL 2015

2013–2017 **External Reviewer.**

CogSci 2017; COLING 2016; NIPS 2016; Knowledge and Information Systems 2016; EMNLP 2015; CogSci 2015; ACL 2014; CogSci 2014; Computational Intelligence 2013; ICCM 2013

9/2013–9/2014 **Graduate Affairs Committee Representative**, *Dept. of Computer Science, U. of Toronto.*

We mainly worked on a new proposal for our departmental PhD progress monitoring system and revising the PhD candidacy requirements. Our goal was to ensure that the students get regular feedback about their research and progress from their committee.

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## Outreach

2/2012 & **Grade 11 CS Visit Day Presenter**, *University of Toronto.*

5/2012 Prepared and taught a workshop on Natural Language Understanding for high school students

2010 & 2011 **Graduate Visit Day Organizer**, *University of Toronto.*

Helped organize the graduate visit day meetings and activities for prospective students

4/2010 **Group Leader**, *Gr8 Design for Gr8 Girls Program*, University of Toronto.

Helped organize the visit of a group of high school girls to our department

4/2007 **Student Organization Committee Member**, *International Symposium on Fundamentals of Software Engineering (FSEN'07)*, Iran.

2006 **Mentor**, *Farzanegan Robocup Rescue Simulation Team*, Farzanegan High School, Iran.

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## References

**Suzanne Stevenson**

Professor

University of Toronto

suzanne@cs.toronto.edu

**Thomas L. Griffiths**

Professor

University of California, Berkeley

tom\_griffiths@berkeley.edu

**Graeme Hirst**

Professor

University of Toronto

gh@cs.toronto.edu

**Michael C. Mozer**

Professor

University of Colorado, Boulder

mozer@colorado.edu

**Richard Zemel**

Professor

University of Toronto

zemel@cs.toronto.edu

**Afsaneh Fazly**

Director of Scientific Research

VerticalScope Inc

afsaneh.fazly@gmail.com