

# LARA J. MARTIN

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## RESEARCH AREAS:

Applied Language Technologies, Artificial Intelligence, Computational Creativity, Dialog Systems, Interactive Narrative, Prosody Modeling

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## EDUCATION:

**Georgia Institute of Technology, Atlanta, GA** **Aug 2015-Present**

School of Interactive Computing, College of Computing

Ph.D. Human-Centered Computing

*Advisor:* Dr. Mark O. Riedl

*Certifications:*

CITI Collaborative Institutional Training Initiative (10/2015)

[Tech to Teaching](#) Certification (Summer 2018)

**Carnegie Mellon University, Pittsburgh, PA** **Aug 2013-Aug 2015**

Language Technologies Institute, School of Computer Science

Master of Language Technologies

**Rutgers University, New Brunswick, NJ** **Sept 2009-May 2013**

School of Arts and Sciences - Honors

Double Major: B.S. Computer Science and Linguistics – Honors, Magna Cum Laude

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## TEACHING:

**Instructor of Record** Summer 2018

CS 3790: Introduction to Cognitive Science

*Georgia Institute of Technology*

**Graduate Teaching Assistant** Fall 2016

CS 3600: Introduction to Artificial Intelligence, Dr. Mark O. Riedl

*Georgia Institute of Technology*

**Graduate Teaching Assistant** Fall 2015

CS/Psych 3790: Introduction to Cognitive Science, Dr. Rosa I. Arriaga

*Georgia Institute of Technology*

**Tutor in Computer Science, Honors Program** 2010

*Rutgers University – New Brunswick*

**Peer Leader for Recitation** Fall 2010

198:111: Intro to Computer Science, Pradip Hari

*Rutgers University – New Brunswick*

**Private Piano Teacher under Florence Adler** 2009

*Shamong, NJ*

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## RESEARCH EXPERIENCE:

**Applied Scientist Intern, Alexa Smart Home Machine Learning**

**Amazon.com Inc, Seattle, WA** **May 2017-Aug 2017**

- Implemented neural networks for addressing implicit targeting—where the device name is underspecified—under Evan Welbourne
- Navigated big data to extract relevant information

**Graduate Research Assistant, School of Interactive Computing  
Georgia Institute of Technology, Atlanta, GA**

**Jan 2016-Present**

- Creating a computational improvisational story-generating agent under the guidance of Professor Mark O. Riedl

**Graduate Research Assistant, Language Technologies Institute  
Carnegie Mellon University, Pittsburgh, PA**

**Sept 2014-Aug 2015**

- Created a speech-to-speech translation system for UPMC under Professor Alan W Black
- Worked with non-English-speaking foreign patients who wish to communicate with hospital staff without the expense of a human translator

**Graduate Research Assistant, Language Technologies Institute  
Carnegie Mellon University, Pittsburgh, PA**

**Sept 2013-Aug 2014**

- Optimized accuracy of emotion classifiers for speech
- Researched improvements in audio summarization using para-linguistics to improve multimedia event detection (MED) and recounting (MER) for TREC Vid

**Undergraduate Researcher, Department of Computer Science  
Rutgers University, Piscataway, NJ**

**Sept 2012-Aug 2013**

- Worked in an artificial intelligence lab under Professor Matthew Stone
- Designed, created, and ran an experiment for a model of uncertainty in spoken English
- Created an interface for the subjects of the experiment using Java
- Analyzed data with TOBI transcription and Praat
- Wrote a senior thesis to present work; research was later published at SLT 2014

**Intern, Institute for Creative Technologies  
University of Southern California, Playa Vista, CA**

**Summer 2011**

- Worked on the Virtual Patient Project (Patrick Kenny, Director)
- Wrote a chatbot for virtual patient using Bruce Wilcox's language Chatscript
- Created authoring tool for Chatscript language using Java
- Created and ran experiments comparing my system to the project's current chat system

**Research Assistant, Aresty Undergraduate Research Program  
Rutgers University, Piscataway, NJ**

**Sept 2010-May 2011**

- Worked in the phonetics lab conducting research about geminates and amplitude drop under Professor Shigeto Kawahara
- Ran perception experiments on English-speaking subjects
- Created a tool in JAVA that would read in a file and calculate the total amount of correct responses per participant
- Presented resulting work at the Aresty Undergraduate Research Symposium, Rutgers University, NJ, April 29, 2011 ([poster](#))

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**PUBLICATIONS:**

**REFEREED CONFERENCE**

**Lara J. Martin\***, Prithviraj Ammanabrolu, Xinyu Wang, William Hancock, Shruti Singh, Brent Harrison, & Mark O. Riedl. "Event Representations for Automated Story Generation with Deep Neural Nets." *Thirty-Second AAAI Conference on Artificial Intelligence (AAAI-18)*, New Orleans, Louisiana, February 2-7, 2018 ([pdf](#), [poster](#), [code](#)).

- Lara J. Martin\***, Brent Harrison, & Mark O. Riedl. “Improvitational Computational Storytelling in Open Worlds.” *In Proceedings of Ninth International Conference on Interactive Digital Storytelling (ICIDS 2016) / INT 9*, Los Angeles, California, November 15-18, 2016 ([pdf](#), [slides](#)).
- Lara J. Martin\***, Andrew Wilkinson, Sai Sumanth Miryala, Vivian Robison, & Alan W Black. “Utterance Classification in Speech-to-Speech Translation for Zero-Resource Languages in the Hospital Administration Domain.” *In Proceedings of IEEE Automatic Speech Recognition and Understanding 2015 (ASRU 2015)*, Scottsdale, Arizona, December 13-17, 2015 ([pdf](#), [poster](#)).
- Lara Martin\***, Matthew Stone, Florian Metze, & Jack Mostow. “A Methodology for Using Crowdsourced Data to Measure Uncertainty in Natural Speech.” *In Proceedings of IEEE Spoken Language Technologies 2014 (SLT 2014)*, South Lake Tahoe, Nevada, December 7-10, 2014 ([pdf](#), [poster](#)).
- Shouu-I Yu, Lu Jiang, Zexi Mao, Xiaojun Chang, Xingzhong Du, Chuang Gan, Zhenzhong Lan, Zhongwen Xu, Xuanchong Li, Yang Cai, Anurag Kumar, Yajie Miao, **Lara Martin**, Nikolas Wolfe, Shicheng Xu, Huan Li, Ming Lin, Zhigang Ma, Yi Yang, Deyu Meng, Shiguang Shan, Pinar Duygulu Sahin, Susanne Burger, Florian Metze, Rita Singh, Bhiksha Raj, Teruko Mitamura, Richard Stern, & Alexander Hauptmann. “Informedia@ TRECVID 2014 MED and MER.” *In Proceedings of TRECVID 2014*, University of Central Florida, Orlando, FL, November 10-12, 2014 ([pdf](#)).

## REFEREED WORKSHOP

- Lara J. Martin\***, Srijan Sood, & Mark O. Riedl. “Dungeons and DQNs: Toward Reinforcement Learning Agents that Play Tabletop Roleplaying Games.” *AAAI Joint Workshop on Intelligent Narrative Technologies (INT) and Intelligent Cinematography and Editing (WICED)*, Edmonton, Alberta, November 13-14, 2018.
- Lara J. Martin\***, Prithviraj Ammanabrolu, Xinyu Wang, Shruti Singh, Brent Harrison, Murtaza Dhuliawala, Pradyumna Tambwekar, Animesh Mehta, Richa Arora, Nathan Dass, Chris Purdy, & Mark O. Riedl. “Improvitational Storytelling Agents.” *Workshop on Machine Learning for Creativity and Design (NIPS 2017)*, Long Beach, CA, December 8, 2017 ([pdf](#), [poster](#)).
- Lara J. Martin\***, Prithviraj Ammanabrolu, William Hancock, Shruti Singh, Brent Harrison, & Mark O. Riedl. “Event Representations for Automated Story Generation with Deep Neural Nets.” *Workshop on Machine Learning for Creativity (KDD 2017)*, Halifax, Nova Scotia, August 14-17, 2017 ([arXiv](#), [slides](#)).
- Seungwhan Moon, Saloni Potdar, & **Lara Martin**. “Identifying Student Leaders from MOOC Discussion Forums through Language Influence.” *In Proceedings of Modeling Large Scale Social Interaction in Massively Open Online Courses Workshop (EMNLP 2014)*, Doha, Qatar, October 25, 2014 ([pdf](#)).
- Sarah Cosentino, Susanne Burger, **Lara Martin**, Florian Metze, Tatsuhiro Kishi, Kenji Hashimoto, Salvatore Sessa, Massimiliano Zecca, & Atsuo Takanishi. “A multisensory non-invasive system for laughter analysis.” *In Proceedings of 36th Annual International IEEE EMBS Conference*, Chicago, IL, August 26-30, 2014 ([pdf](#)).
- Nikolas Wolfe, Vinay Vyas Vemuri, **Lara J. Martin\***, Florian Metze, & Alan W. Black. “Applause: A Learning Tool for Low-Resource Languages.” *In Proceedings of Designing Speech and Language Interactions Workshop (CHI 2014)*, Toronto, Canada, April 26, 2014 ([pdf](#)).

\*Presented

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## AWARDS:

CRA-W Grad Cohort Participation Grant	2016
Lockheed Martin Corporation Scholarship for Participation at Grace Hopper	2013
Phi Beta Kappa Member	2013
SAS Excellence Award	2012
Pennapps – Best Mashery Use Award	2012
Microsoft Imagine Cup – Honorable Mention	2011
National Society of Collegiate Scholars	2011-2013

School of Arts and Sciences Honors Program	2009-2013
Dean's List	2009-2013
Rutgers University James Dickson Carr Scholarship	2009-2013
Edward J. Bloustein Distinguished Scholar	2009-2013

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## **OUTREACH AND LEADERSHIP:**

<b>Volunteer</b> Tech Camp at Bridge Academy <i>Georgia Institute of Technology &amp; Bridge Academy</i>	June 20-23, 2016
<b>Volunteer</b> Taught CS to Middle Schoolers Women@SCS Club & SCS4All Club for Promoting Diversity and Understanding in Computing <i>Carnegie Mellon University</i>	2013-2015
<b>Presenter, Slideshow</b> "Secrets of Computer Science Revealed" <i>STARS Alliance Celebration, Atlanta, GA</i>	August 17, 2013
<b>Presenter, Poster</b> "CS Outreach Amongst Piscataway Youth" <i>STARS Alliance Celebration, Atlanta, GA</i>	August 16, 2013
<b>Presenter, Slideshow</b> "Language Technologies and Finding My Own in College" <i>Upward Bound Event, Rutgers University, NJ</i>	July 11, 2013
<b>Volunteer</b> Taught CS to Middle Schoolers Douglass-DIMACS Computing Corps <i>Rutgers University</i>	2012- 2013
<b>President</b> Women in Computer Science Club <i>Rutgers University</i>	2012- 2013
<b>Webmaster</b> Women in Computer Science Club <i>Rutgers University</i>	2010-2011
<b>Treasurer</b> Undergraduate Linguistics Club <i>Rutgers University</i>	2011-2013
<b>Teacher/Support Officer</b> Unplugged (Board Game Club) <i>Rutgers University</i>	2010-2012

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## **PROFESSIONAL ACTIVITIES:**

<i>Artifact Evaluation Committee Member</i> Fourteenth AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE), University of Alberta, Canada, November 13-17.
<i>Associate Program Chair – Technologies Track</i> International Conference for Interactive Digital Storytelling (ICIDS), Trinity College Dublin, Ireland, December 5-8, 2018.
<i>Program Committee Member</i> North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL HLT) 2018 First Workshop on Storytelling, New Orleans, LA, June 5, 2018.

*Invited Speaker*

Lara J. Martin and Matthew Stone. *A Model of Uncertainty in Language*. REU Site Meeting, University of Pennsylvania, PA, July 18, 2013.

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**CONFERENCES ATTENDED:**

CRA-Women Graduate Cohort Workshop, San Diego, CA, April 15-16, 2016.

NIST TREC Vid 2013 Conference, Gaithersburg, MD, November 20-22, 2013.

Anita Borg Institute's Grace Hopper Celebration, Minneapolis, MN, October 2-5, 2013.

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**SKILLS:**

Programming Languages: Python, Bash, Java, C, HTML, CSS, Javascript, Spark, C++, C# (with XNA), Praat, Matlab, MySQL, PHP, XML, XQuery, Visual Basic, x86 Assembly, Scheme, Prolog

Applications and Toolkits: Tensorflow, openSMILE, NLTK, LaTeX, Festival/FestVox/Flite, LightSide, Praat, Eclipse, Netbeans, Weka

Languages: Intermediate Spanish