

Boyang “Albert” Li, Ph.D.

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<http://boyangli.co>

OBJECTIVE Applying state-of-the-art AI technologies, including both symbolic and statistical approaches, to create innovative entertainment experiences with narrative elements.

EDUCATION **Georgia Institute of Technology**, Atlanta, GA

Ph.D., Computer Science, November 2014

- Dissertation: *Learning Knowledge to Support Domain-Independent Narrative Intelligence*
- Advisor: Dr. Mark O. Riedl

Nanyang Technological University, Singapore

B.E., Computer Engineering, June 2008

- First-Class Honors, Minor in Business

PROFESSIONAL EXPERIENCES **Research Scientist** Jun '15 to Present
Disney Research, Pittsburgh, PA

Post-Doctoral Researcher Jan '15–Jun '15
Disney Research, Pittsburgh, PA

Graduate Research Assistant Aug '09–Dec '14
School of Interactive Computing,
Georgia Institute of Technology, Atlanta, GA

AI Consultant Jun–Aug '11, May–Aug '10
Walt Disney Imagineering, via Caseworks LLC

Research Assistant Jun '08–May '09
School of Computer Engineering,
Nanyang Technological University, Singapore
Supervisor: Dr. Chunyan Miao

Programmer Jan-Jun '07
Philips Electronics, Singapore

REFEREED JOURNAL PUBLICATIONS

1. Baohan Xu, Yanwei Fu, Yu-Gang Jiang, **Boyang Li**, and Leonid Sigal. Heterogeneous Knowledge Transfer in Video Emotion Recognition, Attribution and Summarization. *IEEE Transaction on Affective Computing*. 2016.
2. **Boyang Li**. Humor: A Dynamic and Dual-Process Theory with Computational Considerations. *Advances in Cognitive Systems*, 4:57–74, 2016.
3. Jun Ji, Han Yu, **Boyang Li**, Huiguo Zhang. Learning Chinese Characters with Gestures. *International Journal of Information Technology*. 19(1), 2013.
4. **Boyang Li**, Stephen Lee-Urban, D. Scott Appling and Mark O. Riedl. Crowdsourcing Narrative Intelligence. *Advances in Cognitive Systems*. 2:25–42, 2012.
5. Yundong Cai, Chunyan Miao, Ah-Hwee Tan, Zhiqi Shen, and **Boyang Li**, Creating an Immersive Game World with Evolutionary Fuzzy Cognitive Maps, *IEEE Computer Graphics and Applications*, 30(2):58–70, 2010.

1. Sasha Azad, Jingyang Xu, Haining Yu and **Boyang Li**. Scheduling Live Interactive Narratives with Mixed-Integer Linear Programming. In *the 13th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE)*. Snowbird, Utah. 2017. (Acceptance Rate: 25.0%)
2. James Kennedy, Iolanda Leite, Andre Pereira, Ming Sun, **Boyang Li**, Rishub Jain, Ricson Cheng, Eli Pincus, Elizabeth Carter and Jill Fain Lehman. Learning and Reusing Dialog for Repeated Interactions with a Situated Social Agent. In *the 17th International Conference on Intelligent Virtual Agents (IVA)*. Stockholm, Sweden. 2017. (Acceptance Rate: 18.8%)
3. Tong Wang, Ping Chen, and **Boyang Li**. Predicting the Quality of Short Narratives from Social Media. In *the 26th International Joint Conference on Artificial Intelligence (IJCAI)*. Melbourne, Australia. 2017. (Acceptance Rate: 25.9%)
4. Matthew Guzdial, **Boyang Li**, and Mark O. Riedl. Game Engine Learning from Video. In *the 26th International Joint Conference on Artificial Intelligence (IJCAI)*. Melbourne, Australia. 2017. (Acceptance Rate: 25.9%)
5. Ming Sun, Iolanda Leite, Jill Fain Lehman, and **Boyang Li**. Collaborative Storytelling between Robot and Child: A Feasibility Study. In *the 16th ACM SIGCHI Interaction Design and Children Conference*. Stanford, CA. 2017.
6. Iolanda Leite, Andr Pereira, Allison Funkhouser, **Boyang Li**, and Jill Fain Lehman. Semi-situated Learning of Verbal and Nonverbal Content for Repeated Human-Robot Interaction. In *the 18th ACM International Conference on Multimodal Interaction*. Tokyo, Japan. 2016.
7. Rogelio Cardona-Rivera and **Boyang Li**. PlotShot: Generating Discourse-constrained Stories around Photos. In *the 12th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment*. Burlingame, CA. 2016. (Acceptance Rate: 27.7%)
8. Baohan Xu, Yanwei Fu, Yu-Gang Jiang, **Boyang Li** and Leonid Sigal. Video Emotion Recognition with Transferred Deep Feature Encodings. In *the 2016 ACM International Conference in Multimedia Retrieval*. New York, NY. 2016. (Acceptance Rate: 18%)
9. **Boyang Li**. A Dynamic and Dual-Process Theory of Humor. In *the 3rd Annual Conference on Advances in Cognitive Systems*. Atlanta, GA. 2015.
10. Matthew Guzdial, Brent Harrison, **Boyang Li**, and Mark O. Riedl. Crowdsourcing Open Interactive Narrative. In *the 10th International Conference on the Foundations of Digital Games*. Pacific Grove, CA. 2015.
11. **Boyang Li**, Mohini Thakkar, Yijie Wang and Mark O. Riedl. Storytelling with Adjustable Narrator Style and Sentiments. In *the 7th International Conference on Interactive Digital Storytelling*. Singapore. 2014. (Acceptance Rate: 29%)
12. **Boyang Li**, Stephen Lee-Urban, George Johnston, and Mark O. Riedl. Story Generation with Crowdsourced Plot Graphs. In *the 27th AAAI Conference on Artificial Intelligence*. Bellevue, Washington. 2013. (Acceptance Rate: 29%)
13. **Boyang Li**, Alexander Zook, Nicholas Davis, and Mark O. Riedl. Goal-Driven Conceptual Blending: A Computational Approach for Creativity. In *the 3rd International Conference on Computational Creativity*. Dublin, Ireland. 2012. (Acceptance Rate: 50%)

14. **Boyang Li** and Mark O. Riedl. Creative Gadget Design in Fictions: Generating Novel Object Types in Blended Spaces. In *the 8th ACM Conference on Creativity and Cognition*. Atlanta, Georgia. 2011. (Acceptance Rate: 23%) (Panel Presentation: 6%)
15. Nicholas Davis, **Boyang Li**, Brian O’Neill, Mark Riedl, and Michael Nitsche. Distributed Creative Cognition In Digital Filmmaking. In *the 8th ACM Conference on Creativity and Cognition*. Atlanta, Georgia. 2011. (Acceptance Rate: 23%) (**Best Student Paper**)
16. James Niehaus, **Boyang Li** and Mark O. Riedl. Automated Scenario Adaptation in Support of Intelligent Tutoring Systems. In *the 24th Conference of the Florida Artificial Intelligence Research Society*, 2011. (Acceptance Rate: 50%)
17. **Boyang Li** and Mark O. Riedl. An Offline Planning Approach to Game Plotline Adaptation. In *the 6th Conference on Artificial Intelligence for Interactive Digital Entertainment*, 45-50. Palo Alto, CA. 2010. (Acceptance Rate: 29%)
18. **Boyang Li**, Yew-Soon Ong, Minh Nghia Le, Chi Keong Goh, Memetic Gradient Search, In *IEEE Congress on Evolutionary Computation*, 2894-2901. Hong Kong. 2008.

REFEREED
CONFERENCE
POSTERS

1. Yi Luan, Yangfeng Ji, Hannaneh Hajishirzi, and **Boyang Li**. Multiplicative Representations for Unsupervised Semantic Role Induction. In *the 54th Annual Meeting of the Association for Computational Linguistics*. Berlin, Germany. 2016.
2. **Boyang Li**, Mohini Thakkar, Yijie Wang, and Mark O. Riedl. Data-Driven Storytelling Agents with Adjustable Personal Traits and Sentiments. In *the 14th International Conference on Intelligent Virtual Agents*. Boston, MA, 2014.
3. **Boyang Li**, Stephen Lee-Urban, and Mark O. Riedl. Crowdsourcing Interactive Fiction Games. In *the 8th International Conference on the Foundations of Digital Games*, Chania, Greece, 2013.
4. **Boyang Li**. Narrative Intelligence Without (Domain) Boundaries. In *Doctoral Consortium, the 8th Annual Conference on Artificial Intelligence and Interactive Digital Entertainment*. Palo Alto, CA. 2012.
5. Mark O. Riedl, **Boyang Li**, Hua Ai, and Ashwin Ram. Robust and Authorable Multiplayer Interactive Narrative Experiences. In *the 7th Annual Conference on Artificial Intelligence and Interactive Digital Entertainment*. Palo Alto, CA, 2011.
6. **Boyang Li**, Han Yu, Zhiqi Shen, Chunyan Miao, Evolutionary Organizational Search, In *the 8th International Conference on Autonomous Agents and Multiagent Systems*, 1329-1330, Budapest, Hungary. 2009.
7. Hock Beng Lim, Keck Voon Ling, Wenqiang Wang, Yuxia Yao, Mudasser Iqbal, **Boyang Li**, Xiaonan Yin, Tarun Sharma, The National Weather Sensor Grid. In *SenSys*, 369-370, 2007.

REFEREED
WORKSHOP
PUBLICATIONS

1. Matthew Guzdial, Nathan Sturtevant and **Boyang Li**. Deep Static and Dynamic Level Analysis: A Study on Infinite Mario. In *The 3rd Experimental AI in Games Workshop*, Burlingame, CA. 2016.
2. **Boyang Li**, Mohini Thakkar, Yijie Wang, and Mark O. Riedl. Data-Driven Alibi Story Telling for Social Believability. In *the Social Believability in Games Workshop*, Fort Lauderdale, FL. 2014.

3. **Boyang Li**, Stephen Lee-Urban, and Mark O. Riedl. Toward Autonomous Crowd-Powered Creation of Interactive Narratives. In *the 5th Workshop on Intelligent Narrative Technologies*, Palo Alto, CA, 2012.
4. **Boyang Li**, D. Scott Appling, Stephen Lee-Urban, and Mark O. Riedl. Learning Sociocultural Knowledge via Crowdsourced Examples. In *the 4th AAI Workshop on Human Computation*, Toronto, Canada, 2012.
5. **Boyang Li**, Stephen Lee-Urban, D. Scott Appling, and Mark O. Riedl. Automatically Learning to Tell Stories about Social Situations from the Crowd. In *the LREC 2012 Workshop on Computational Models of Narrative*, 2012.
6. **Boyang Li** and Mark O. Riedl. A Phone That Cures Your Flu: Generating Imaginary Gadgets in Fictions with Planning and Analogies. In *the 4th Workshop on Intelligent Narrative Technologies*, Palo Alto, CA, 2011.
7. Mark O. Riedl and **Boyang Li**. Creating Customized Virtual Experiences by Leveraging Human Creative Effort: A Desideratum. In *the AAMAS'10 Workshop on Collaborative Human/AI Control for Interactive Experiences*, Toronto, Canada, 2010.
8. **Boyang Li** and Mark O. Riedl. Planning for Individualized Experiences with Quest-Centric Game Adaptation. In *the ICAPS'10 Workshop on Planning in Games*, Toronto, Canada, 2010.

CONFERENCE
DEMOS

1. **Boyang Li** and Mark O. Riedl. Scheherazade: Crowd-Powered Interactive Narrative Generation. In *The 29th AAI Conference on Artificial Intelligence*. Austin, TX. 2015.
2. Huiliang Zhang, Zhiqi Shen, Xuehong Tao, Chunyan Miao, **Boyang Li**, Ailiya, Yundong Cai. Emotional agent in serious game (DINO). In *The 8th International Conference on Autonomous Agents and Multiagent Systems*. Budapest, Hungary. 2009.

BOOK CHAPTER

1. **Boyang Li** and Mark O. Riedl. Creating Customized Game Experiences by Leveraging Human Creative Effort: A Planning Approach. In *Agents for Games and Simulations II*. Frank Dignum (Ed.) LNAI 6525. 99-116, 2011.

PATENTS FILED

1. Systems and Methods for Determining Semantic Roles of Arguments in Sentences. Filed on May 20, 2016
2. Semi-situated Learning of Verbal and Nonverbal Content in an Autonomous Agent. Filed on Sep 2, 2016

AWARDS

- Outstanding Program Committee Member, Nominated
- The 25th International Joint Conference on Artificial Intelligence (IJCAI) 2016
- Best Program Committee Member, Honorable Mention
- The 10th Annual AAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE) 2014
- Travel Award
- The 27th AAI Conference on Artificial Intelligence 2013
- Best Student Paper
- The 8th ACM Conference on Creativity and Cognition 2011

	Dean's List	
	<ul style="list-style-type: none"> Nanyang Technological University 	2004–2008
TEACHING EXPERIENCE	Teaching Assistant Georgia Institute of Technology CS 3600 - Introduction to Artificial Intelligence (27 students) <ul style="list-style-type: none"> Overall student rating 4.25 / 5. Covered the entire machine learning section. 	Summer '13
	Guest Lecturer Georgia Institute of Technology CS 3600 - Introduction to Artificial Intelligence (100+ students) <ul style="list-style-type: none"> Gave three guest lectures on genetic algorithms, MDPs, and computational creativity. 	Spring '14
SUPERVISED STUDENTS AND INTERNS	Ming Sun (Post Doc at Disney Research) Sasha Azad (Intern at Disney Research) Erva Ulu (Intern at Disney Research) Matthew Guzdial (Intern at Disney Research) Tong Wang (Intern at Disney Research) Rogelio Cardona-Rivera (Intern at Disney Research) Yi Luan (Intern at Disney Research) Yijie "Jimmy" Wang (B.S. Computer Science) Mohini Thakkar (M.S. Computer Science) John P. Rafferty (B.S. Computer Science)	2016-2017 2016-2017 2016-2017 2016 2016 2016 2015 2013–2014 2013–2014 2013
SERVICE	Co-Chair <ul style="list-style-type: none"> The 8th Intelligent Narrative Technologies Workshop (INT) Proceedings Co-Chair <ul style="list-style-type: none"> The 10th International Conference on the Foundations of Digital Games (FDG) The 9th International Conference on the Foundations of Digital Games (FDG) Journal Reviewer <ul style="list-style-type: none"> The IEEE Transaction on Computational Intelligence and AI in Games (TCIAIG) Virtual Reality (Springer Journal) Program Committee Member <ul style="list-style-type: none"> The 13th Annual AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE) the 10th International Conference on Interactive Digital Storytelling (ICIDS) The 12th Foundation of Digital Games Conference (FDG) (Artificial Intelligence Track) The 26th International Joint Conference on Artificial Intelligence (IJCAI) The 12th Annual AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE) the 9th International Conference on Interactive Digital Storytelling (ICIDS) The 1st Joint DiGRA/FDG Conference 	2015 2015 2014 2012, 2015, 2016 2015 2017 2017 2017 2017 2016 2016 2016

	<ul style="list-style-type: none"> • The 25th International Joint Conference on Artificial Intelligence (IJCAI) 2016 • The International Conference on Autonomous Agents and Multiagent Systems (AAMAS) 2016 • The 11th Annual AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE) 2015 • The 10th Annual AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE) 2014 • The Experimental AI for Games Workshop (EXAG) 2014 	
	Conference Webmaster	
	<ul style="list-style-type: none"> • The 8th Annual AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE) 2012 	
	Student Volunteer	
	<ul style="list-style-type: none"> • The 27th AAAI Conference on Artificial Intelligence • The 2013 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL: HLT) 	
	Library Graduate Advisor Board, Georgia Tech	2011 to 2014
	<ul style="list-style-type: none"> • Acted as communication channel between students and the library • Reviewed the library budget and and planned for its renovation • Developed plans to employ AI and HCI techniques to meet the information needs of library users 	
	Judge for the Undergraduate Research Symposium	2011, 2013
INVITED TALKS	Nanyang Technological University	Jan '13
	Title: <i>Computational Narrative Intelligence</i>	
	Singapore University of Technology and Design	Jul '14
	Title: <i>Computational Narrative Intelligence: Connecting Symbolic and Statistical Methods</i>	
	North Carolina State University	Mar '15
	Title: <i>Learning Knowledge to Support Domain-Independent Narrative Intelligence</i>	
	University of Iowa	Apr '15
	Title: <i>Learning Knowledge to Support Domain-Independent Narrative Intelligence</i>	
	University of Utah	Apr '15
	Title: <i>Learning Knowledge to Support Domain-Independent Narrative Intelligence</i>	
	Disney Consumer Products and Interactive	Oct '16
	Title: <i>Deciphering the Success of Google's AlphaGo</i>	
PRESS COVERAGE	<i>Techcrunch</i> : Disney experiments look to make kid-robot interactions more natural. June 26, 2017. Retrieved at https://techcrunch.com/2017/06/26/disney-experiments-look-to-make-kid-robot-interactions-more-natural/	
	<i>Bloolooop.com</i> : Disney studies uncover educational advantages of robot-child interaction. June 27, 2017. Retrieved at https://bloolooop.com/news/disney-research-robot-child-interaction/	

Inside the Magic: Disney Research experimenting with interactive, storytelling robots to better connect with children. June 27, 2017. Retrieved at <http://www.insidethemagic.net/2017/06/disney-research-experimenting-interactive-storytelling-robots-better-connect-children/>

New Scientist: Automatic authors: Making machines that tell tales. Issue 2990. October 13, 2014.

The Guardian: Once upon a bot: can we teach computers to write fiction? November 11, 2014. Retrieved at <http://www.theguardian.com/books/2014/nov/11/can-computers-write-fiction-artificial-intelligence>

Gizmag.com: Creative AI: Teaching computers to be reporters and storytellers. February 9, 2015. Retrieved at <http://www.gizmag.com/creative-ai-automated-writing-storytelling/35989/>

Science Friday, National Public Radio: Rise of the Bot Author. March 13, 2015. Retrieved at <http://sciencefriday.com/segment/03/13/2015/rise-of-the-bot-author.html>

Inside the Black Box, WREK Atlanta 91.1FM: It's a Funny Story. July 1, 2015.

Motherboard: This AI Creates Interactive Fiction by Reading Other People's Stories. September 2, 2015. Retrieved at <http://motherboard.vice.com/read/this-ai-creates-interactive-fiction-by-reading-other-peoples-stories>

Popular Science: Algorithm Turns Fiction Into Interactive Games. September 3, 2015. Retrieved at <http://www.popsci.com/algorithm-helps-you-write-an-interactive-fiction-story>

SOFTWARE
PROJECTS

Scalpl: A partial-order planner in Scala.

LANGUAGES

Mandarin Chinese	Bilingual / Native
English	Bilingual / Native