Yonatan Bisk

(Grounded) Natural Language Processing
Computer Science

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Positions

2020 **Assistant Professor**, *Carnegie Mellon University*
Language Technologies Institute & Robotics Institute

2019 **Postdoctoral Scholar**
University of Washington & Allen Institute for Artificial Intelligence — Advisor: Yejin Choi
Information Sciences Institute, University of Southern California — Advisor: Daniel Marcu

Education

2015 **PhD in Computer Science**, *The University of Illinois at Urbana-Champaign*,
Thesis: **Unsupervised Grammar Induction with Combinatory Categorial Grammars**
Advisor: Julia Hockenmaier
Committee: Jason Eisner, Dan Roth, ChengXiang Zhai

2009 **BS in Computer Science**, *The University of Texas at Austin*, Turing Scholar,
Thesis: The Necessity of Separating Control and Logic When Grounding Language using Neuroevolution
Advisor: Risto Miikkulainen   Second Reader: Raymond Mooney

Conference and Journal Publications

2019 **Improving Robot Success Detection using Static Object Data**
Rosario Scalise, Jesse Thomason, Yonatan Bisk, and Siddhartha Srinivasa,
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)

– **Early Fusion for Goal Directed Robotic Vision**
Aaron Walsman, Yonatan Bisk, Saadia Gabriel, Dipendra Misra, Yoav Artzi, Yejin Choi, and Dieter Fox,
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)

– **HellaSwag: Can a Machine Really Finish Your Sentence?**
Rowan Zellers, Ari Holtzman, Yonatan Bisk, Ali Farhadi and Yejin Choi,
Proc of the 2019 Conference of the Association for Computational Linguistics (ACL)

– **From Recognition to Cognition: Visual Commonsense Reasoning**
Rowan Zellers, Yonatan Bisk, Ali Farhadi and Yejin Choi,
The IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Oral

– **Tactical Rewind: Self-Correction via Backtracking in Vision-and-Language Navigation**
Liyiming Ke, Xiujun Li, Yonatan Bisk, Ari Holtzman, Zhe Gan, Jingjing Liu, Jianfeng Gao, Yejin Choi and Siddhartha Srinivasa,
The IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Oral

– **Prospection: Interpretable Plans From Language By Predicting the Future**
Chris Paxton, Yonatan Bisk, Jesse Thomason, Arunkumar Byravan, and Dieter Fox,
International Conference on Robotics and Automation (ICRA)

– **Shifting the Baseline: Single Modality Performance on Visual Navigation & QA**
Jesse Thomason, Daniel Gordon, and Yonatan Bisk,
Proc of the 2019 Conference of the N. American Chapter of the Association for Computational Linguistics (Short)

– **Benchmarking Hierarchical Script Knowledge**
Yonatan Bisk, Jan Buys, Karl Pichotta, and Yejin Choi,
Proc of the 2019 Conference of the N. American Chapter of the Association for Computational Linguistics (Short), Oral

– **Character-based Surprisal as a Model of Human Reading in the Presence of Errors**
Michael Hahn, Frank Keller, Yonatan Bisk, and Yonatan Belinkov,
The 41st Annual Meeting of the Cognitive Science Society, Oral

2018 **SWAG: A Large-Scale Adversarial Dataset for Grounded Commonsense Inference**
Rowan Zellers, Yonatan Bisk, Roy Schwartz and Yejin Choi,
Proceedings of the 2018 Conference on Empirical Methods in Natural Language Processing (EMNLP), Oral

- **Synthetic and Natural Noise Both Break Neural Machine Translation**
  Yonatan Belinkov and <u>Yonatan Bisk</u>,
  Proceedings of the 6th International Conference on Learning Representations (ICLR), Oral

- **Learning Interpretable Spatial Operations in a Rich 3D Blocks World**
  <u>Yonatan Bisk</u>, Kevin Shih, Yejin Choi and Daniel Marcu,
  Proceedings of the Thirty-Second Conference on Artificial Intelligence (AAAI-18)

2017 **Natural Language Inference from Multiple Premises**
  Alice Lai, <u>Yonatan Bisk</u>, and Julia Hockenmaier,
  Proceedings of the Eighth International Joint Conference on Natural Language Processing, Oral

2016 **Evaluating Induced CCG Parsers on Grounded Semantic Parsing**
  <u>Yonatan Bisk</u>, Siva Reddy, John Blitzer, Julia Hockenmaier and Mark Steedman,
  Proceedings of the 2016 Conference on Empirical Methods in Natural Language Processing, pp 2022 – 2027

- **Natural Language Communication with Robots**
  <u>Yonatan Bisk</u>, Deniz Yuret and Daniel Marcu,
  Proceedings of the 2016 Conference of the North American Chapter of the Association for Computational Linguistics, pp 751 – 761, Oral

- **Supertagging With LSTMs**
  Ashish Vaswani, <u>Yonatan Bisk</u>, Kenji Sagae and Ryan Musa,
  Proceedings of the 2016 Conference of the North American Chapter of the Association for Computational Linguistics (Short Papers), pp 232–237, Oral

2015 **Probing the Linguistic Strengths and Limitations of Unsupervised Grammar Induction**
  <u>Yonatan Bisk</u> and Julia Hockenmaier,
  Proc of the 53rd Annual Meeting of the Association for Computational Linguistics and the 7th International Joint Conference on Natural Language Processing (Volume 1: Long Papers), pp 1395 – 1404, Oral

- **Labeled Grammar Induction with Minimal Supervision**
  <u>Yonatan Bisk</u>, Christos Christodoulopoulos and Julia Hockenmaier,
  Proceedings of the 53rd Annual Meeting of the Association for Computational Linguistics and the 7th International Joint Conference on Natural Language Processing (Volume 2: Short Papers), pp 870 – 876

2013 **An HDP Model for Inducing Combinatory Categorial Grammars**
  <u>Yonatan Bisk</u> and Julia Hockenmaier,
  Transactions of the Association for Computational Linguistics, Vol 1, pp 75-88

2012 **Simple Robust Grammar Induction with Combinatory Categorial Grammars**
  <u>Yonatan Bisk</u> and Julia Hockenmaier,
  Proceedings of the Twenty-Sixth Conference on Artificial Intelligence (AAAI-12), pp 1643–1649

- **Document-Topic Hierarchies from Document Graphs**
  Tim Weninger, <u>Yonatan Bisk</u> and Jiawei Han,
  Proceedings of the 21st ACM International Conference on Information and Knowledge Management (CIKM)

2010 **Normal-form parsing for Combinatory Categorial Grammars with generalized composition and type-raising**
  Julia Hockenmaier and <u>Yonatan Bisk</u>,
  Proceedings of the 23rd International Conference on Computational Linguistics (Coling 2010), pp 465–473

Workshop Publications & Tech Reports

2018 **Inducing Grammars with and for Neural Machine Translation**
  Ke Tran and <u>Yonatan Bisk</u>,
  Workshop on Neural Machine Translation, Best paper - Oral

- **Bridging HMMs and RNNs Through Architectural Transformations**
  Jan Buys, <u>Yonatan Bisk</u>, and Yejin Choi,
  Interpretability and Robustness in Audio, Speech, and Language Workshop @ NeurIPS

- **CHALET: Cornell House Agent Learning Environment**
  Claudia Yan, Dipendra Misra, Andrew Bennnett, Aaron Walsman, <u>Yonatan Bisk</u> and Yoav Artzi,
  ArXiv

2016 **Unsupervised Neural Hidden Markov Models**
  Ke Tran, <u>Yonatan Bisk</u>, Ashish Vaswani, Daniel Marcu and Kevin Knight,
  Proceedings of the Workshop on Structured Prediction for NLP, pp 63–71, Oral

- **Towards a Dataset for Human Computer Communication via Grounded Language Acquisition**
  <u>Yonatan Bisk</u>, Daniel Marcu and William Wong,
  Proceedings of the AAAI 2016 Workshop on Symbiotic Cognitive Systems, pp 729 – 732

2012 **Induction of Linguistic Structure with Combinatory Categorial Grammars**
<u>Yonatan Bisk</u> and Julia Hockenmaier,
NAACL HLT Workshop on Inducing Linguistic Structure, pp 90–95

Conference Organization / Area-Chair

2019 **Area Chair**, *Vision Robotics Multimodal Grounding and Speech*, Association for Computational Linguistics

– **Workshop Org**, *Workshop on Spatial Language Understanding and Grounded communication for Robotics*, North American Chapter of the Association for Computational Linguistics

2018 **Conference Org**, *Social Media Chair*, North American Chapter of the Association for Computational Linguistics

– **Area Chair**, International Conference on Computational Linguistics

– **Workshop Org**, *Generalization in the Age of Deep Learning*, North American Chapter of the Association for Computational Linguistics

– **Workshop Org**, *Wordplay: Reinformcent and Language Learning in Text-Based Games*, NeurIPS

2017 **Conference Org**, *Student Scholarship Chair and Student Volunteer Coordinator*, Conference on Empirical Methods in Natural Language Processing

– **Workshop Org**, *Language Grounding for Robotics*, Conference of the Association for Computational Linguistics

2016 **Area-Chair**, *Semantic Parsing and Semantic Role Labeling*, Conference on Lexical and Computational Semantics (*SEM)

Reviewer

NLP	**ACL**	Association for Computational Linguistics,	*2017, 2018*
	CL	Computational Linguistics Journal,	*2017*
	CoLing	International Conference on Computational Linguistics,	*2016*
	CoNLL	Conference on Computational Natural Language Learning,	*2016 – 2018*
	EACL	European Chapter of the Association for Computational Linguistics,	*2014, 2017*
	EMNLP	Empirical Methods in Natural Language Processing,	*2013 – 2019*
	IJCNLP	International Joint Conference on Natural Language Processing,	*2017*
	NAACL	N. American Chapter of the Association for Computational Ling,	*2016 – 2019*
	NLE	Natural Language Engineering Journal,	*2016*
	TACL	Transactions of the Assoc. for Computational Linguistics,	*2019*
Robo	**CoRL**	Conference on Robot Learning,	*2019*
	ICRA	International Conference on Robotics and Automation,	*2019*
	IJRR	International Journal of Robotics Research,	*2017*
	IROS	IEEE/RSJ International Conference on Intelligent Robots and Systems,	*2019*
	RA-L	IEEE Robotics and Automation Letters,	*2019*
AI/ML	**AAAI**	Association for the Advancement of Artificial Intelligence,	*2018*
	ICLR	International Conference on Learning Representations,	*2019*
	ICML	International Conference on Machine Learning,	*2019*
	IJCAI	International Joint Conference on Artificial Intelligence,	*2019*
	NeurIPS	Neural Information Processing Systems,	*2018 – 2019*

Diversity and Inclusion

2018 **ACM Council on Diversity & Inclusion**, Investigating and initiating institutional change within ACM on behalf of underrepresented groups., *1yr*

– **Grace Hopper PC member**, Review submissions to AI Technical Track, *1yr*

2016	**NCWIT Collegiate Award**, Review applications for the National Center for Women & Information Technology's Collegiate Award honoring college women, ISI	*Ongoing*
2009	**NCWIT Aspirations in Computing**, Review applications for the National Center for Women & Information Technology's Award for Aspirations in Computing which supports high-school girls interested in CS, UIUC, ISI	*Ongoing*
–	**Tech Junket/Women in CS**, CS outreach (presentations and recruitment) for local Urbana-Champaign pre-college students, UIUC	*2yrs*
2008	**Freshman Research Mentor**, Mentored students to perform research, UTexas	*1yr*
–	**First Bytes**, Helped organize a summer camp for girls interested in CS, UTexas	
–	**Co-Founded Breakfast Bytes**, Professor talks for pre-college students, UTexas	*1yr*
–	**CS Roadshow**, CS presentations at Austin middle and high schools, UTexas	*1yr*

Invitations and Talks

2018	**Colloquium Talk**, *Northwest NLP*
2017	**Invited Talk**, *University of Notre Dame NLP Seminar*
	Invited Talk, *University of California, Irvine AI/ML Seminar*
	Invited Talk, *Pacific Northwest National Laboratory*
2016	**Invited Poster**, *The Impact of Computing in Our Physical World session of the CRA's Computing Community Consortium (CCC) Symposium on Computing Research*
2015	**Colloquium Talk**, *Toyota Tech. Inst. of Chicago's Midwest Speech & Language Days*
2013	**Colloquium Talk**, *Toyota Tech. Inst. of Chicago's Midwest Speech & Language Days*

Community Service

2017	**Association for Computing Machinery Future of Computing Academy Member**, "... a platform that enables the next generation of researchers, ... to develop a coherent and influential voice that addresses challenging issues facing the field and society in general",	Ongoing
–	**NSF review panel**, Scholarships in the Division of Undergraduate Education	
–	**Intel International Science and Engineering Fair**, Pre-college science competition for the Assoc. for the Advancement of Artificial Intelligence (AAAI)	

University Service

2017	**RoboNLP Reading Groups**, Reading group for students across robotics and NLP to learn and collaborate.	*2yrs*
–	**Organize UW NLP Seminar**, Coordinate with professors to invite and host speakers to the department	*2yrs*
2015	**USC Postdoc Association Representative**,	*1yr*
2013	**Fellowships, Assistantships, and Admissions Committee**, Decide which students are admitted to the CS PhD and MS programs	*1yr*
–	**Departmental Graduate Academic Council**, Vet departmental seminars and policies in addition to creating new useful resources and seminars for students	*1yr*
–	**Departmental Grievance Committee**, Evaluate validity of complaints filed by students against professors	*2yrs*
2011	**Engineering Graduate Student Advisory Committee**, Advise the engineering dean on graduate matters and organize events for students	*1yr*
2010	**Organize Artificial Intelligence & Information Systems Seminar**, Coordinate with professors to invite and host speakers to the department	*5yrs*
2009	**PhD Ambassador & Mentor**, Introduce students to the department and graduate school both during visits and adjustment to the department upon entry	*4yrs*

Awards, Honors, and Fellowships

2018	**Finalist, UW Postdoc Mentoring Award**, University of Washington
2014	**Andrew and Shana Laursen Fellow**, University of Illinois
2013	**State Farm Companies Foundation Doctoral Scholarship**, University of Illinois
2013	**Graduate Student Outstanding Ambassador Award**, University of Illinois
2012	**Cognitive Science / Artificial Intelligence Award**, *Beckman Institute*
2011	**Honorable Mention for NSF Graduate Research Fellowship Program**
2009	**Honorable Mention for NSF Graduate Research Fellowship Program**
2008	**College of Natural Science Summer Research Fellowship**, UTexas
2007	**Departmental Summer Research Fellowship**, UTexas

▬ Teaching

2014	**Teaching Assistant**, Graduate Machine Learning in NLP (# Students: 27), UIUC
2011	**Teaching Assistant**, Artificial Intelligence (# Students: 97), UIUC
2010	**Teaching Assistant**, Artificial Intelligence (# Students: 63), UIUC

▬ Industry Employment

2014	**NLP Research Intern**, *Google, Inc.*, Mountain View, CA
	Informing grammar induction with semantics under John Blitzer
2013	**NLP Research Intern**, *Google, Inc.*, Mountain View, CA
	Leveraged syntactic information in question answering with John Blitzer
2009	**iPhone Development Intern**, *Apple, Inc.*, Cupertino, CA
	Create robust metrics for evaluating keyboard and auto-correction performance
2006	**SQL Server Intern**, *Microsoft Corporation*, Redmond, WA
	Created data-mining ribbon for Excel 2007 and UI test cases for SQL server

▬ References

Yejin Choi,
Associate Prof at the University of Washington and
Senior Research Manager at the Allen Instit for AI,   yejin@cs.washington.edu

Dieter Fox,
Professor at the University of Washington and
Senior Director of Robotics Research at Nvidia,   fox@cs.washington.edu

Julia Hockenmaier,
Associate Prof at the University of Illinois at Urbana-Champaign,   juliahmr@illinois.edu

Kevin Knight,
Prof at the University of Southern California
Chief Scientist for NLP at Didi Chuxing,   kevin.crawford.knight@gmail.com