

Grusha Prasad

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EMPLOYMENT

Assistant Professor of Computer Science, Colgate University	2022-Present
Research Intern, Facebook AI Research	Fall 2020

EDUCATION

Johns Hopkins University, Ph.D. Cognitive Science	2017-2022
<i>Advisor: Tal Linzen</i>	

Hampshire College, B.A. Cognitive Science	2013-2017
<i>Advisor: Joanna Morris</i>	

Other certificates:

Johns Hopkins University, Teaching Academy Certificate	2021
Johns Hopkins University, Teaching Institute	2020
Five College Certificate for Cognitive Neuroscience	2017

PEER-REVIEWED JOURNAL PAPERS

Kuan-Jung Huang, Suhas Arehalli, Mari Kugemoto, Christian Muxica, **Grusha Prasad**, Brian Dillon & Tal Linzen. Large-scale benchmark yields no evidence that language model surprisal explains syntactic disambiguation difficulty (2024) *Journal of Memory and Language*.

Grusha Prasad & Tal Linzen. Rapid syntactic adaptation in self-paced reading: detectable, but only with many participants (2021). *Journal of Experimental Psychology: Learning, Memory and Cognition*.

PEER-REVIEWED PROCEEDINGS PAPERS

Grusha Prasad* & Forrest Davis* (2024). Training an NLP Scholar at a Small Liberal Arts College: A Backwards Designed Course Proposal. *In Proceedings of the Sixth Workshop on Teaching NLP*. [paper]. *equal contribution.

Aryaman Chobey, Oliver Smith, Anzi Wang & **Grusha Prasad**. Can training neural language models on a curriculum with developmentally plausible data improve alignment with human reading behavior? *Proceedings of the 27th Conference on Computational Natural Language*

Learning (CoNLL): BabyLM shared task. [paper]

Shauli Ravfogel*, **Grusha Prasad***, Tal Linzen & Yoav Goldberg (2021). Counterfactual Interventions Reveal the Causal Effect of Relative Clause Representations on Agreement Prediction *In Proceedings of the BabyLM Challenge at the 27th Conference on Computational Natural Language Learning.* [paper]. *equal contribution.

Grusha Prasad, Yixin Nie, Mohit Bansal, Robin Jia, Douwe Kiela & Adina Williams (2021). To what extent do human explanations of model behavior align with actual model behavior? *Proceedings of the 4th Workshop on the Analysis and Interpretation of Neural Networks for Natural Language Processing (BlackBox NLP)* [paper].

Douwe Kiela, Max Bartolo, Yixin Nie, Divyansh Kaushik, Atticus Geiger, Zhengxuan Wu, Bertie Vidgen, **Grusha Prasad**, Amanpreet Singh, Pratik Ringshia, Zhiyi Ma, Tristan Thrush, Sebastian Riedel, Zeerak Waseem, Pontus Stenetorp, Robin Jia, Mohit Bansal, Christopher Potts, Adina Williams. Dynabench: Rethinking Benchmarking in NLP. *Proceedings of the 2021 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies* [paper]

Grusha Prasad, Marten van Schijndel & Tal Linzen (2019). Using priming to uncover the organization of syntactic representations in neural language models. *Proceedings of the 23rd Conference on Computational Natural Language Learning (CoNLL).* [paper] **Honorable mention for Best Paper Award for Research Inspired by Human Language Learning and Processing**

PEER-REVIEWED CONFERENCE PRESENTATIONS

2024:

Grusha Prasad & Omar Fargally. Prolific vs. MTurk: Differences in overall reading times and accuracy, but not effect sizes. **Oral Presentation.** *37th Annual Annual Conference on Human Sentence Processing.*

Grusha Prasad & Tal Linzen. SPAWNing priming predictions with an uncertainty-based reanalysis mechanism reveals distinct representations of reduced and full relative clauses in English. **Poster Presentation.** *37th Annual Annual Conference on Human Sentence Processing.*

William Timkey, Suhas Arehalli, Kuan-Jung Huang, **Grusha Prasad**, Tal Linzen & Brian Dillon. Large-scale eye-tracking while reading benchmark shows surprisal captures early fixations, but not regressions **Poster Presentation.** *37th Annual Annual Conference on Human Sentence Processing.*

2023:

Grusha Prasad & Tal Linzen. Studying relative clause representations: a novel parsing model and priming paradigm. **Oral Presentation.** *36th Annual Annual Conference on Human Sentence Processing.* [slides]

2022:

Kuan-Jung Huang, Suhas Arehalli, Mari Kugemoto, Christian Muxica, **Grusha Prasad**, Brian Dillon and Tal Linzen. SPR mega-benchmark shows surprisal tracks construction- but not item-level difficulty. **Oral Presentation.** *The 35th Annual Conference on Human Sentence Processing, Virtual Conference.* [slides]

2020:

Grusha Prasad, & Tal Linzen. Rapid syntactic adaptation in SPR: detectable, but requires many participants. **Oral Presentation**. *33rd Annual CUNY Conference on Human Sentence Processing*, Virtual Conference, March 19. [slides]

2019:

Grusha Prasad and Tal Linzen. How much harder are hard garden-path sentences than easy ones? **Poster Presentation**. *41st Annual Conference of the Cognitive Science Society, Montreal, July 24-27* [poster] [OSF]

Grusha Prasad, Marten van Schijndel & Tal Linzen. Using syntactic priming to investigate how recurrent neural networks represent syntax **Poster Presentation**. *32nd Annual CUNY Conference on Human Sentence Processing*, Boulder, Colorado, March 15. [poster]

Grusha Prasad, & Tal Linzen. Reassessing the evidence for syntactic adaptation from self-paced reading studies. **Poster Presentation**. *32nd Annual CUNY Conference on Human Sentence Processing*, Boulder, Colorado, March 15. [poster]

2018:

Grusha Prasad, Joanna Morris & Mark Feinstein. The P600 for singular 'they': How the brain reacts when John decides to treat themselves to sushi. **Poster Presentation**, *31st Annual CUNY Conference on Human Sentence Processing*, Davis, California, March 15. [poster]

2017:

Grusha Prasad, Joanna Morris & Mark Feinstein. The P600 for singular 'they': How the brain reacts when John decides to treat themselves to sushi. **Oral Presentation**, *58th Annual Meeting of the Psychonomic Society*, Vancouver, British Columbia, November 9-12. [slides]

PEER-REVIEWED CONFERENCE PANEL PARTICIPATION

The Promises and Pitfalls of Large Language Models for Science and Society (moderator). *American Association for the Advancement of Science*. February 16 2024.

INVITED TALKS

Using computational models to evaluate competing (psycho)linguistic theories. *C.PsyD lab, Cornell University*. October 20 2023.

Generating and testing *quantitative* predictions about language processing
Keynote talk: *Summer School on Statistical Methods for Linguistics and Psychology, University of Potsdam, Germany*. September 12 2023.

Using a syntactic-theory first approach to study structural representations: a novel parsing model and priming paradigm.
s/lab, University of California Santa Cruz (Virtual Talk). May 18 2023.

Generating and testing *quantitative* predictions about language processing
Natural Science Colloquium, Colgate University, New York. April 28 2023.

What incremental structures do comprehenders construct when processing sentences?
Sentence Processing Colloquium, University of Potsdam, Germany (Virtual talk). June 16 2022.

The P600 for singular ‘they’: How the brain reacts when John decides to treat themselves to sushi.
University of Massachusetts, Amherst (Virtual Talk). October 15 2021.

How do neural networks encode and use syntactic information?
Complang, Massachusetts Institute of Technology (Virtual talk). April 7 2021.

Using priming to understand how humans and neural networks represent sentences
Cognitive and Behavioural Neuroscience Colloquium, George Mason University (Virtual talk). February 17 2021.

Fantastic garden path effects and how to find and model them
University of Potsdam, Germany (Virtual talk). March 13 2020.

TEACHING

Classes at Colgate University:

Truth Through the Science Looking Glass	2024
Natural Language Processing	2023,2024
Data Structures and Algorithms	2023,2024
Applied Machine Learning	2024
Introduction to Computing I	2023,2022

Classes at Johns Hopkins University:

Instructor: Playing with Data: an Experimenter’s Guide to Hypotheses Evidence and the Truth	2021
Teaching Assistant: Bayesian Inference	2020
Teaching Assistant: Introduction to computational cognitive science	2019
Teaching Assistant: Cognitive Neuropsychology of Visual Perception	2019
Teaching Assistant: Cognitive Development	2018
Teaching Assistant: Mind, Brain and Experience.	2018

Other:

Workshops on Cognitive neuroscience and Experimental Design	2015
<i>Co-designed and ran multiple session workshop for 8th graders at Hilltown Charter School (East Hampton, MA) and Oakridge International School (Bengaluru, India)</i>	

MENTORING

Undergraduate research students from Colgate University
Anzi Wang, Aryaman Chobey, Edna Gutierrez, Nancy Lei, Paige Mizutani, Oliver Smith, Omar Fargally

Undergraduate students from Johns Hopkins University

Hunter Paulison, Daniela Torres, Meg Obata, Claire Joyce, Brody Silva, Nicholas Douglass

Women in Science and Engineering (WISE) Program 2018
Co-mentored a high school student on an eye-tracking project

NON PEER-REVIEWED MANUSCRIPTS

Grusha Prasad (Phd Dissertation). Towards Characterizing Incremental Structure Building During Sentence Comprehension. [JHU Library Copy]

Grusha Prasad & Joanna Morris. The P600 for singular 'they': How the brain reacts when John decides to treat themselves to sushi. [PsyArXiv] [OSF]

GRANTS

Co-PI: CC* Campus Compute: Colgate Compute Acceleration for Research and Education. *National Science Foundation* Collaborative award with Niranjan Davray, Anthony R Chianese, Michael Loranty and Kyriakos Tsukolas (\$499,948) 2024-2026

PI: Mind, Brain, and Behavior Scholar Program Awarded to student Anzi Wang. 2024-2025
Faculty members at Colgate write proposals nominating students to work on a research project. Student receives stipend to work full time on the research project in the summer as well as 80 hours during the academic year.

PI: Colgate University Faculty Initiated Summer Research Award 2023
Summer research funding for three students.

AWARDS AND HONORS

Outstanding Area Chair at ACL 2023
Awarded to 1-1.5% of the pool of reviewers and chairs.

Gibson/Fedorenko Young Scholars Prize 2023
This prize honors young scholars who present outstanding scientific work as a talk at the annual Conference on Human Sentence Processing

APA Dissertation Research Award 2021
Awards are made annually by the APA Science Directorate to promising graduate students to assist with the costs of their dissertation research

Johns Hopkins University, Owen's Scholar Award 2017-2020
Fellowship for outstanding incoming PhD students in the natural sciences

Hampshire College, Ingenuity Award 2017
An award to recognize students who work in creative and effective ways to improve the Hampshire community

Hampshire College, Ray and Lorna Coppinger Endowment Grants 2016

Research grant for projects in cognitive or biological sciences

Hampshire College, Cognitive Science 2016
Research grant for projects in cognitive science

Hampshire College program in Culture, Brain and Development 2016, 2015
Research grant for projects incorporating psychobiological and sociocultural perspectives

Hampshire College program in Culture, Brain and Development 2016, 2015
Summer placement grant for projects incorporating psychobiological and sociocultural perspectives

Hampshire College, Ethics and Common Good grant 2015
Grant to support student projects that address a common good issue/ community need

Hampshire College, Earl Ubell Science Information Award 2015
Grant to support student projects that seek to make the scientific method or scientific findings accessible to non-scientists

Hampshire College, Bell Ringer Merit Scholarship 2015
Most prestigious merit scholarship awarded to incoming students

SERVICE

Grant Reviewing:

National Science Foundation 2023

Journal Reviewing:

Journal of Memory and Language 2024

Language Cognition and Neuroscience 2024

Language Cognition and Neuroscience 2023

Quarterly Journal of Experimental Psychology 2022

Glossa Psycholinguistics 2022

Glossa Psycholinguistics 2021

Transactions of the Association for Computational Linguistics (co-reviewer) 2021

Cortex 2021

Language 2020

Cortex 2020

Language Cognition and Neuroscience (co-reviewer) 2019

Conference Program Committee:

Area chair: Association for Computational Linguistics 2023

Conference Reviewing:

Architectures and Mechanisms for Language Processing 2024

Annual Conference on Human Sentence Processing 2024

Annual Conference on Human Sentence Processing 2023

Annual Conference of the Cognitive Science Society 2022

The North American Chapter of the Association for Computational Linguistics 2022

The SIGNLL Conference on Computational Natural Language Learning 2021

European Chapter of the Association for Computational Linguistics 2020

Colgate University:

NASC Retreat Planning Committee Member 2024

Mind, Brain and Behavior Initiative Committee Member 2023, 2024

Co-organizer of the CS Department Tea 2022, 2023

Johns Hopkins University:

Departmental Representative for the Graduate Representative Organization 2017-2021

Hampshire College:

Student Representative to the School of Cognitive Science 2016-2017

Culture, Brain and Development Student Group Leader 2015-2017

PROFESSIONAL MEMBERSHIPS

Human Sentence Processing Society 2022,2023

American Psychological Association 2021

Association for Computational Linguistics 2019

Psychonomic Society 2017,2018

SKILLS

Programming languages

Python, PyTorch, R, MATLAB, Java, Clojure

Natural languages

Proficient in English, Telugu, Kannada. Conversational Hindi. Basic French.

Stimulus presentation software

IbexFarm, PCIBex, PsychoPy, OpenSesame, E-prime