

NATHANIEL WEIR

Department of Computer Science
Johns Hopkins University · Baltimore, MD
cs.jhu.edu/~nweir · nweir@jhu.edu

EDUCATION

- 2019–Present **Johns Hopkins University**
Ph.D. in Computer Science
- 2019–2021 M.S.E. in Computer Science
Advisor: Benjamin Van Durme
- 2015–2019 **Brown University**
Sc.B. in Applied Mathematics & Computer Science, *magna cum laude* with Honors
Thesis: *Bootstrapping Generalization in Neural Text-to-SQL Semantic Parsing Models*
Advisors: Ugur Cetintemel, Carsten Binnig, and Ellie Pavlick

ACADEMIC INTERESTS

neuro-symbolic reasoning over text, controllable generation from language models, machine common sense

PUBLICATIONS

- 2023 Orion Weller, Marc Marone, **Nathaniel Weir**, Dawn Lawrie, Daniel Khashabi, and Benjamin Van Durme. “According to ...” Prompting Language Models Improves Quoting from Pre-Training Data. ArXiv preprint.
- 2023 **Nathaniel Weir**, Ryan Thomas, Randolph d’Amore, Kellie Hill, Benjamin Van Durme, and Harsh Jhamtani. Ontologically Faithful Generation of Non-Player Character Dialogues. ArXiv preprint.
- 2022 Orion Weller, Aleem Khan, **Nathaniel Weir**, Dawn Lawrie, and Benjamin Van Durme. Defending Against Poisoning Attacks in Open-Domain Question Answering. ArXiv preprint.
- 2022 **Nathaniel Weir** and Benjamin Van Durme. Dynamic Generation of Interpretable Inference Rules in a Neuro-Symbolic Expert System. ArXiv preprint.
- 2022 **Nathaniel Weir**, Xingdi Yuan, Marc-Alexandre Côté, Matthew J. Hausknecht, Romain Laroche, Ida Momennejad, Harm van Seijen and Benjamin Van Durme. One-Shot Learning from a Demonstration with Hierarchical Latent Language. *AAMAS*.
- 2021 Jiefu Ou*, **Nathaniel Weir***, Anton Belyy*, Felix Yu, and Benjamin Van Durme. InFillmore: Frame-Guided Language Generation with Bidirectional Context. *StarSem*.
- 2020 **Nathaniel Weir**, João Sedoc, and Benjamin Van Durme. COD3S: Diverse Generation with Discrete Semantic Signatures. *EMNLP*. **Oral Presentation.**
- 2020 **Nathaniel Weir**, Adam Poliak, and Benjamin Van Durme. Probing Neural Language Models for Human Tacit Assumptions. *CogSci*. **Oral Presentation.**
- 2020 **Nathaniel Weir**, Prasetya Utama, Alex Galakatos, Andrew Crotty, Amir Ilkhechi, Shekar Ramaswamy, Rohin Bhusan, Nadja Geisler, Benjamin Hattasch, Steffen Eger, Ugur Cetintemel, and Carsten Binnig. DBPal: A Fully Pluggable NL2SQL Training Pipeline. *SIGMOD*. **Oral Presentation.**
- 2018 Fuat Basik, Benjamin Hattasch, Amir Ilkhechi, Arif Usta, Shekar Ramaswamy, Prasetya Utama, **Nathaniel Weir**, Carsten Binnig and Ugur Cetintemel. DBPal: A Learned NL-Interface for Databases. *SIGMOD*. **Demo Presentation.**

- 2017 Prasetya Utama, **Nathaniel Weir**, Carsten Binnig, and Ugur Cetintemel. [Voice-based Data Exploration: Chatting with your Database](#). *SCAI*.

RESEARCH EXPERIENCE

- Fall 2019 **Center for Language and Speech Processing at Johns Hopkins University**
– Present *PhD Researcher*
- Summer 2023 **Allen Institute for Artificial Intelligence**
PhD Research Intern
Mentor: Peter Clark
- Summer 2022 **Microsoft Semantic Machines**
PhD Research Intern
Mentor: Harsh Jhamtani
- Summer 2021 **Microsoft Research – Montreal**
PhD Research Intern
Mentors: Harm Van Seijen, Xingdi Yuan and Marc-Alexandre Côté
- Spring 2017 **Database Group at Brown University**
– May 2019 *Undergraduate Researcher*

PRESENTATIONS

Language Models as Proposal Functions in a Neuro-Symbolic Expert System

- 05/2023 Talk Massachusetts Institute of Technology
05/2023 Talk Brown University

One-Shot Learning from a Demonstration with Hierarchical Latent Language

- 03/2022 Talk 9th Mid-Atlantic Student Colloquium on Speech, Language and Learning

Probing Neural Language Models for Human Tacit Assumptions

- 03/2020 Poster 8th Mid-Atlantic Student Colloquium on Speech, Language and Learning

DBPal: A Fully Pluggable Natural Language Interface to Databases

- 01/2019 Talk North East Database Day @ MIT
10/2018 Talk IBM AI Systems Day @ MIT
01/2018 Demo North East Database Day @ MIT

AWARDS

- 2021 - 2024 **NSF Graduate Research Fellowship**
- 2019 **CRA Outstanding Undergraduate Researcher Award, Honorable Mention**
- 2019 **SIGMOD Undergraduate Research Competition, 2nd place**
- 2019 **Brown Computer Science Senior Award**
- 2019 **Sigma Xi Electee**
- 2019 **Brown CS Undergraduate Research Symposium, 3rd Place**
- 2018 **Randy F. Pausch CS Undergraduate Summer Research Award, \$10,000**
- 2018 **NSF Travel Grant, \$1,000**
- 2017 **Karen T. Romer Undergraduate Teaching and Research Award, \$3,500**

TEACHING EXPERIENCE

Teaching Assistant, Johns Hopkins University

Fall 2022 CS 601.470/670 Artificial Agents
Instructor: Benjamin Van Durme

Teaching Assistant, Brown University

Fall 2018 CSCI1570 Design and Analysis of Algorithms
Instructor: Paul Valiant

Spring 2017, CSCI0220 Discrete Structures and Probability
Spring 2018 Instructor: Caroline Klivans

REVIEWING

ACL Rolling Review (2022, 2023), **EMNLP 2023**, **ICLR 2021** (secondary), **ACL 2020** (secondary), **AKBC 2020** (secondary)

COURSEWORK

Undergraduate GPA: 3.95 Graduate GPA: 4.0

Natural Language Processing / Artificial Intelligence: Computational Semantics, Applied Event Semantics, Deep Learning for Dialog, Natural Language Processing, Machine Learning, Causal Inference, Artificial Intelligence

Computational Cognitive Science: Computational Psycholinguistics, Logic in Language and Thought, Computational Cognitive Science

Mathematics: Computational Probability and Statistics, Information Theory, Pattern Theory, Computational Linear Algebra, Ordinary/Partial Differential Equations, Multivariate Calculus

Computer Science: Data Science, Probabilistic Algorithms, Sketching and Indexing, Compilers, Language-based Security, Prescriptive Analytics, Algorithms, Systems