

# NAOMI SAPHRA

## Gradient Descent Spectator

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## WORK EXPERIENCE

### NLP Consultant

#### Mosaic ML

2022 - present

New York, New York

### Postdoctoral Researcher

#### NYU

2021 - present

New York, New York

- Supervisor: Kyunghyun Cho.

### Research Intern

#### Google

Winter 2020

New York, New York

- Supervisors: Dipanjan Das (Language, Google AI), Ian Tenney, Jasmijn Bastings, Thibault Sellam.
- Better understanding of how BERT learns.

### Contractor

#### Koko

Summer 2017

New York, New York

- Developed neural classifiers for informal text at anti-abuse startup.

### Software Engineering Intern

#### Google

Summer 2013 & 2015

Mountain View, California

- Supervisor: Marius Pasca (Common Sense, Machine Intelligence).
- Unsupervised discovery of paraphrases of compositional noun phrases.
- Supervisor: Eric Altendorf (Common Sense, Machine Intelligence).
- Integrated models of real-world knowledge into entity linking.

### Undergraduate Research Fellow

#### CLSP Summer Workshop at Johns Hopkins University

Summer 2012

Baltimore, Maryland

- Supervisor: Matthew Blaschko.
- Unsupervised methods to verify image annotations.

### Engineering Intern

#### Facebook

Summer 2011

Palo Alto, California

- Supervisor: Jen Burge (Engagement Team).
- Engineered new features for the People You May Know model.

## EDUCATION

### Ph.D. in Informatics

#### Edinburgh University

2021

Supervisor: Adam Lopez.

Thesis: Training Dynamics of Neural Language Models.

### M.Sc. in Computer Science

#### Johns Hopkins University

2015

### B.Sc. in Computer Science

#### Carnegie Mellon University

2013

Minor in Language Technologies

### Sabbatical

#### The Recurse Center

2017

Unstructured programming retreat.

## AWARDS

- ICLR outstanding reviewer 2021, 2022.
- New York Academy of Sciences - Natural Language, Dialogue and Speech Symposium: Best Poster Runner Up.
- Daniella Sciama Award for Achievement through Adversity 2019.
- Google Europe Scholarship for Students with Disabilities 2017.
- Carnegie Mellon School of Computer Science Dragon Award 2013.
- National Merit Semifinalist 2009.
- Nannina Rasulo Memorial Scholarship Award for Technology 2009.

## SKILLS & HOBBIES

Python

C++

spacy

pytorch

NLP

pretraining

interpretability

Roller Derby

Standup

Clown

## SELECTED PUBLICATIONS

### Conference Proceedings

- Sellam, Thibault et al. (2022). "The MultiBERTs: BERT Reproductions for Robustness Analysis". In: *ICLR*.
- White, Jennifer C. et al. (2021). "A Non-Linear Structural Probe". In: *NAACL*.
- Pimentel, Tiago et al. (2020). "Pareto Probing: Trading Off Accuracy for Complexity". In: *EMNLP*.
- Saphra, Naomi and Adam Lopez (2020). "LSTMs Compose—and Learn—Bottom-Up". In: *Findings of EMNLP*.
- Saphra, Naomi and Lopez, Adam (2019). "Understanding Learning Dynamics Of Language Models with SVCCA". in: *NAACL*.
- Saphra, Naomi and Adam Lopez (2015). "AMRICA: an AMR Inspector for Cross-language Alignments". In: *NAACL*.
- Vedaldi, Andrea et al. (2014). "Understanding Objects in Detail with Fine-grained Attributes." In: *CVPR*.

### Workshop Proceedings

- Saphra, Naomi and Adam Lopez (2019). "Sparsity Emerges Naturally in Neural Language Models". In: *ICML Workshop on Identifying and Understanding Deep Learning Phenomena*.
- Saphra, Naomi and Lopez, Adam (2016). "Evaluating Informal-Domain Word Representations With UrbanDictionary". In: *ACL Workshop on Evaluating Vector Space Representations for NLP*.
- Cotterell, Ryan et al. (2014). "An Algerian Arabic-French Code-Switched Corpus". In: *LREC Workshop on Free/Open-Source Arabic Corpora*.
- Schneider, Nathan et al. (2014). "A framework for (under) specifying dependency syntax without overloading annotators". In: *ACL Linguistic Annotation Workshop*.

## SERVICE

### Organizing Committee

**5th Workshop on analyzing and interpreting neural networks for NLP**

 2022

### Area Chair

**EMNLP**

 2021, 2021

### Organizing Committee

**6th Workshop on Representation Learning for NLP**

 2021

### ACL Accessibility Subcommittee

**Association for Computational Linguistics**

 2020  Seattle, WA

### Communications committee

**Auld Reekie Roller Derby**

 2017 – 2019  Edinburgh, UK

### Puzzle tester and local organizer

**North American Computational Linguistics Olympiad**

 2012 – 2014

## TEACHING

### Project Supervisor

**NYU**

 2021

Machine Learning MS Capstone

### Tutor

**University of Edinburgh**

 2016 – 2019

Informatics Research Review  
Probabilistic Modeling & Reasoning  
Machine Learning & Pattern Recognition

### Course Assistant


**Johns Hopkins University**

 2013

Natural Language Processing

### Teacher's Assistant

**Irvington High School**

 2008 – 2009

Ancient Greek

## INVITED TALKS

### Sources of Variance in Pretraining and Finetuning (Keynote)

**3rd Neural Scaling Laws Workshop**

 June 2022  Quebec

### Learning Dynamics of LMs

**UC Berkeley**

 November 2020  Berkeley, CA

### Transparent, Hackable, Accessible

**QueerInAI EMNLP Social**

 November 2020  Remote (EMNLP)

### Learning Dynamics of LSTMs

**NLP with Friends**

 October 21, 2020  Remote

### Accessible Means Hackable (Keynote)

**Pydatafest Amsterdam**

 June 15, 2020  Amsterdam, Netherlands

### Blackbox NLP Panel Discussion

**ACL Blackbox NLP Workshop**

 Aug 1, 2019  Florence, Italy

### Paying the Panopticon (standup)

**The Stand Edinburgh Comedy Club**

 Feb 26, 2019  Edinburgh, UK