

# DENİZ BAYAZIT

## PhD Candidate

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## EDUCATION

### PhD in Computer Science

EPFL - École Polytechnique Fédérale de Lausanne

📅 Sep 2021 - Present

📍 Lausanne, Switzerland

- **Depth area:** AI/NLP
- **Primary interests:** Interpretability and design of large language models.
- **Topic:** My long-term PhD research goal is to reveal whether large language models can encode symbolic or modular representations that can be systematically edited. I am currently working on a parameter search algorithm to find knowledge-specialized subnetworks. I am also interested in the new design of large language models with the goal of making model components more human-interpretable.
- **Coursework:** Topics in NLP, Machine Learning, Database Management Systems

### MSc & BSc in Computer Science

Brown University

📅 Sep 2016 - May 2021

📍 Providence, RI, USA

- **Graduate:** AI/ML Pathway
- **Undergraduate:** AI/ML and Data Science Pathways with Honors
- **Awards:** *Honorable Mention* for the Computing Research Association's (CRA) Outstanding Undergraduate Researcher Award 2020, Interdisciplinary Team Undergraduate Teaching and Research Award (Summer 2019, Fall 2019).
- **Coursework:** AI, Deep Learning, Learning with Limited Labels, Language Processing in Humans and Machines, Lexical Semantics

## RESEARCH EXPERIENCE

### Graduate Research Assistant

EPFL NLP

📅 Sep 2021 - Present

📍 Lausanne, Switzerland

- **Advisor:** Antoine Bosselut
- Knowledge localization and model editing for large language models.

### Undergraduate and Graduate Research Assistant

H2R & LUNAR Laboratory

📅 June 2018 - May 2021

📍 Providence, RI, USA

- **Advisor:** Stefanie Tellex, Ellie Pavlick
- **Undergraduate:** NLP for robotics - Grounding language to goals and formal logic.
- **Graduate:** Interpretability - Analyzed the compositionality of grounded representations in BERT by training probes for scalar prediction tasks and evaluating nouns and their composition with scalar adjectives. NLP for robotics - Spatial language understanding.

## SELECTED PUBLICATIONS & PREPRINTS

- D Bayazit, N Foroutan, Z Chen, G Weiss, A Bosselut. *Discovering Knowledge-Critical Subnetworks in Pretrained Language Models*. arXiv 2023. [PDF]
- S Gao, B Borges, S Oh, D Bayazit, S Kanno, H Wakaki, Y Mitsufuji, A Bosselut. *PeaCoK: Persona Commonsense Knowledge for Consistent and Engaging Narratives*. ACL 2023. **Outstanding Paper Award**. [PDF] [Code]

## TEACHING EXPERIENCE

### Graduate TA - Modern NLP

EPFL

📅 Spring 2023, 2024

📍 Lausanne, Switzerland

- **Professor:** Antoine Bosselut
- Teaching assistant for a course on the foundations and applications of modern natural language processing methods and issues with state-of-the-art approaches. Prepared assignments, practical sessions, and the project. Course Code: CS 552. [Website]

### Graduate TA - Introduction to NLP

EPFL

📅 Fall 2022, 2023

📍 Lausanne, Switzerland

- **Professor:** Jean-Cédric Chappelier, Martin Rajman, Antoine Bosselut
- Assisted in teaching classical and modern NLP concepts such as levels of language processing, parsing, representations of meaning, and evaluation in NLP. Restructured course exercise sessions and quizzes. Course Code: CS 431. [Website]

## VOLUNTEER SERVICES

- **Reviewer:** CSRR ACL 2022 Workshop, ICRA 2021, ML-RSA NeurIPS 2020 Workshop, ICRA 2020
- **Mentorship:** IC Buddy Program @EPFL, Out in CS @Brown 2021, WiCS @Brown 2020

## TECHNICAL SKILLS

- **Programming Languages:** Python [PyTorch, TensorFlow, scikit, pandas, transformers ...] (fluent); C, Scala, Java (familiar)
- **Operating Systems & Software:** Linux, Mac OS, Vim
- **Version Control & Cloud Computing:** Git, Bitbucket, Docker
- **Data Collection & Processing:** Amazon Mechanical Turk, spaCy, NLTK, SQL, Excel
- **Typesetting:** LaTeX

## LANGUAGE SKILLS

- **Fluent:** English, French, Turkish
- **Elementary:** Spanish, Japanese