Ben Eyal

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Work Experience

2022–Present | **Research Engineer** at **Allen Institute for AI (Ai2)**, Israel

scala   zio   lucene   nlp   information-retrieval   streaming

Developed advanced linguistic search systems using Lucene, incorporating NLP features like POS tags, named entities, and dependency parsing. Built scalable stream processing pipelines and optimized search performance across large-scale NLP-annotated datasets. Drove successful migration from Scala 2/Akka to Scala 3/ZIO. System available here.

2019–2021 | **Lecturer** at **Ben-Gurion University**, Israel

teaching   typescript   functional-programming

Taught "Principles of Programming Languages" to undergraduate computer science and software engineering students. Received an "Excellence in Teaching" award from the computer science department.

Education

2018–2024 | **PhD** at **Ben-Gurion University**, Israel

python   pytorch   huggingface   text-to-sql   nlp   language-models

Developed an NLP system for text-to-SQL parsing using Query Plan Language (QPL), a novel intermediate representation between SQL execution plans and natural SQL. Fine-tuned large language models using PyTorch and HuggingFace, achieving SOTA execution accuracy on the Spider benchmark's hard and extra-hard queries. Code available on GitHub. Completed under the supervision of Prof. Michael Elhadad.

2015–2018 | **MSc** at **Ben-Gurion University**, Israel

python   nlp   cross-lingual   semantic-role-labeling   dataset-creation

Created a Hebrew semantic role labeling dataset by automatically aligning English and Hebrew subtitles. Used English FrameNet models to project semantic annotations onto Hebrew text, enabling the first Hebrew SRL resource.

2012–2016 | **BSc in Software Engineering** at **Ben-Gurion University**, Israel

software-engineering

Graduated with honors.

Programming Proficiency

LANGUAGES: Python, SQL, Scala
LIBRARIES: HuggingFace ecosystem, PyTorch, scikit-learn, pandas, NumPy, Matplotlib, seaborn, SciPy, ZIO

Skills and Accomplishments

TECHNICAL SKILLS:
- Natural Language Processing (NLP): Transformer architectures, semantic parsing, SRL
- Data Science: Statistical analysis, data visualization, feature engineering
- Machine Learning: Deep learning, neural networks, supervised learning

LANGUAGES: Hebrew, English

PUBLICATIONS:
- Semantic Decomposition of Question and SQL for Text-to-SQL Parsing (EMNLP Findings 2023, PDF)
- Building a Hebrew Semantic Role Labeling Lexical Resource from Parallel Movie Subtitles (LREC 2020, PDF)

SPEAKING: Presented my PhD research to 250 SAP employees in an internal "Innovation Information Session Series" seminar.