Saeed Najafi

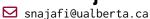✉ snajafi@ualberta.ca 🔗 saeednajafi 🌐 Papers ⦿ Sample-code

Recent Interests

🔖 **Natural Language Processing**
Efficient Tuning, Prompt Optimization, Speculative Decoding, Reading Comprehension, Visual QA

🔖 **Machine Learning**
Policy Learning, Approximate Inference, Neural Net Training Dynamics, Knowledge Distillation

Work Experience

🔖 **(Internship) Associate Researcher**   Fall 2024 - Ongoing
Huawei, Toronto, Canada.

- Researcher at the Noah's Ark Lab in Huawei Canada conducting research in NLP/ML.
- Research on Knowledge Distillation and Speculative Decoding to speedup inference in LLMs.

🔖 **(Internship) Ph.D. Software Engineer**   Fall 2023
Google, Mountain View, USA.

- ML Research Engineer at Augmented Language team in Google Augmented Reality.
- Experiments for query, caption, and response generation with Gemini and PaLI models.
- Proposed an auto-grader for VQA systems using PaLM-2 and T5 sentence similarity.
- I was part of a patent application as a result of my internship project.

🔖 **(Internship) Applied ML Engineer**   Fall 2022
Vector Institute, Toronto, Canada.

- Provided reference implementations for multiple prompt optimization techniques.
- Helped organize a workshop about prompt optimization techniques.

🔖 **(Internship) Ph.D. Software Engineer**   Summer 2022
Google, Remote.

- Analyzed user journey for Business Messaging.
- Modified production code to collect data for user-business conversations (FlumeJava, Borg).
- Trained sequence models for discovering patterns around user intents in conversations.

🔖 **ML Engineer**   2018-2020
BenchSci, Toronto, Canada

- The startup has raised $95 M in series A, B, and C investments.
- Developing NLP models for entity and relation extraction within bio-medial papers.
- Developing big data pipelines applying ML models in a distributed environment.

Education

Ph.D. Candidate in Computing Science   2020 -
University of Alberta, Edmonton, Canada
Advisor: Alona Fyshe
Tentative Thesis: Learning Latent Text Sequences for Improved Conditional Text Generation
Courses: Probabilistic Graphical Models, Combinatorial Optimization, Reinforcement Learning

M.Sc. in Computing Science   2016 - 2018
University of Alberta, Edmonton, Canada
Advisors: Greg Kondrak & Colin Cherry
Thesis: Sequence Labeling and Transduction with Output-Adjusted Actor-Critic Training of RNNs

B.Sc. in Software Engineering   2012 - 2016
Amirkabir University of Technology, Tehran, Iran
Advisor: Reza Safabakhsh
Thesis: Predicating ATM Machines Faults

Research Publications

RIFF: Learning to Rephrase Inputs for Few-shot Fine-tuning of Language Models
(ACL 2024, paper)

Weakly-Supervised Questions for Zero-Shot Relation Extraction
(EACL 2023, paper)

Efficient Sequence Labeling with Actor-Critic Training
(CAIAC 2019, paper)

String Transduction with Target Language Models and Insertion handling
(SIGMORPHON @ EMNLP 2018, paper)

Combining Neural and Non-Neural Methods for Low-Resource Morphological Reinflection
(CoNLL-SIGMORPHON @ EMNLP 2018, paper)

Comparison of Assorted Models for Transliteration
(NEWS @ ACL 2018, paper)

If you can't beat them, join them: the University of Alberta system description
(CoNLL-SIGMORPHON @ ACL 2017, paper)

Professional Experiences

Talk

Tutorial on Prompt Engineering in Language Models – UpperBound Conference (May 2024, link)

Parameter-Free Discrete Prompt Optimization – Vector Institute (April 2023)

Towards Soft-Prompt Tuning with Large Language Models – Vector Institute (Dec 2022, link)

Teaching Assistant

Fine-tuning & Alignment Bootcamp – Vector Institute (July 2024)

Prompt Engineering Workshop – Vector Institute (May 2023)

Introduction to Database Systems – U of Alberta (Falls 2016 & 2017 & 2020)

Advanced Database Systems – U of Alberta (Winters 2017 & 2018 & 2022)

C Programming Language – U of Alberta (Winter 2018)

Honours & Awards

- J Gordin Kaplan Graduate Student Award (*$2000 - July 2024*)
- Amii's Talent Bursary for Upperbound Conference (*$1250 - May 2024*)
- The University of Alberta Doctoral Recruitment Award (*$5000 - September 2020*)
- Honorary direct admission to the graduate school of Amirkabir U of Technology having high undergraduate GPA (10/120). (*June 2015*)
- Ranked among the top 0.5% in the university entrance exam. (*July 2012*)
- Semi-finalist at Iranian National Mathematics Olympiad (2010 and 2011)

MISC

Reviewer	For venues: ACL, TMLR, NAACL-HLT, EMNLP, IJCNLP, EACL
Languages	English, Persian, Azeri
Citizenship	Canadian, Iranian