

Elman Mansimov

RESEARCH INTERESTS

Research and development of deep learning and natural language processing applications.

EMPLOYMENT

Amazon AWS AI, New York, NY, USA

Senior Applied Scientist

October 2022 - Present

Working on foundation LLM model at Amazon Bedrock Titan. Leading the effort of integrating conversational skills into the Bedrock Titan LLM model through RLHF.

Applied Scientist

December 2020 - September 2022

Research and development of natural language understanding models for Amazon Lex task-oriented conversational chatbots.

Portfolio:

- Driving an initiative that aims to find solution for ensuring backward compatibility in machine learning modeling updates. AWS CEO Adam Selipsky [highlighted this work in his tweet](#).
- Individual contributor of [Amazon Lex Automated Chatbot Designer](#) tool that boosts the productivity of chatbot developers by reducing bot design from weeks to hours.
- Core member of the team researching novel paradigms of natural language understanding in task-oriented chatbots.

Other highlights: Mentored 7 interns, had 6 papers accepted to top ML/NLP conferences (6 accepted to AAAI/ACL/EMNLP/NeurIPS), developed web demo of conversational semantic parsing model that got high praise and made an impact on Alexa AI organization.

EDUCATION

New York University, New York, NY, USA

September 2016 - December 2020

Ph.D., Computer Science

Thesis: Neural Structured Prediction using Iterative Refinement with Applications to Text and Molecule Generation

Advisor: Kyunghyun Cho

University of Toronto, Toronto, ON, Canada

September 2011 - June 2015

Honours Bachelor of Science, Computer Science, CGPA: 3.65

REFERRED PUBLICATIONS

Google Scholar: <https://scholar.google.com/citations?user=znVE1ZIAAAAJ&hl=en>

10+ papers accepted to top conferences (NeurIPS, ICML, ICLR, ACL, EMNLP, and AAAI) and top journals (Nature Communications and Scientific Reports)

Citations according to Google Scholar (Nov 2023): 5002, h-index: 12

** indicates equal contribution*

Mujeen Sung, James Gung, **Elman Mansimov**, Nikolaos Pappas, Raphael Shu, Salvatore Romeo, Yi Zhang, Vittorio Castelli. *Empirical Methods in Natural Language Processing (EMNLP)*, 2023.

Shamik Roy, Raphael Shu, Nikolaos Pappas, **Elman Mansimov**, Yi Zhang, Saab Mansour, Dan Roth. Conversation Style Transfer using Few-Shot Learning. *Asia-Pacific Chapter of the ACL (AACL)*, 2023.

Yi-An Lai, **Elman Mansimov**, Yuqing Xie, Yi Zhang. Improving Prediction Backward-Compatibility in NLP Model Upgrade with Gated Fusion. *Findings of The European Chapter of the ACL (EACL)*, 2023.

Deng Cai, **Elman Mansimov**, Yi-An Lai, Yixuan Su, Lei Shu, Yi Zhang. Measuring and Reducing Model Update Regression in Structured Prediction for NLP. *Neural Information Processing Systems (NeurIPS)*, 2022.

Yixuan Su, Lei Shu, **Elman Mansimov**, Arshit Gupta, Deng Cai, Yi-An Lai, Yi Zhang. Multi-Task Pre-Training for Plug-and-Play Task-Oriented Dialogue System. *Association for Computational Linguistics (ACL)*, 2022.

Aaron Mueller, Jason Krone, Salvatore Romeo, Saab Mansour, **Elman Mansimov**, Yi Zhang, Dan Roth. Label Semantic Aware Pre-training for Few-shot Text Classification. *Association for Computational Linguistics (ACL)*. 2022.

Elman Mansimov and Yi Zhang. Semantic Parsing in Task-Oriented Dialog with Recursive Insertion-based Encoder. *AAAI Conference on Artificial Intelligence (AAAI)*, 2022.

Omar Mahmood, **Elman Mansimov**, Richard Bonneau, Kyunghyun Cho. Masked Graph Modeling for Molecule Generation. *Nature Communications*, 2021.

Elman Mansimov*, Mitchell Stern*, Mia Chen, Orhan Firat, Jakob Uszkoreit, Puneet Jain. Towards End-to-End In-Image Neural Machine Translation. *NLP Beyond Text workshop, Empirical Methods in Natural Language Processing (EMNLP)*, 2020.

Elman Mansimov, Omar Mahmood, Seokho Kang, Kyunghyun Cho. Molecular geometry prediction using a deep generative graph neural network. *Nature Scientific Reports*, 2019.

Jason Lee*, **Elman Mansimov***, Kyunghyun Cho. Deterministic Non-Autoregressive Neural Sequence Modeling by Iterative Refinement. *Empirical Methods in Natural Language Processing (EMNLP)*, 2018, **Oral**.

Elman Mansimov, Kyunghyun Cho. Simple Nearest Neighbor Policy Method for Continuous Control Tasks. *Deep Reinforcement Learning Symposium, Neural Information Processing Systems (NeurIPS)*, 2017.

Yuhuai Wu*, **Elman Mansimov***, Shun Liao, Roger Grosse, Jimmy Ba. Scalable trust-region method for deep reinforcement learning using Kronecker-factored approximation. *Neural Information Processing Systems (NeurIPS)*, 2017, **Spotlight**.

Elman Mansimov, Emilio Parisotto, Jimmy Ba and Ruslan Salakhutdinov. Generating Images from Captions with Attention. *International Conference on Learning Representations (ICLR)*, 2016, **Oral**.

Nitish Srivastava, **Elman Mansimov**, and Ruslan Salakhutdinov. Unsupervised learning of video representations using LSTMs. *International Conference on Machine Learning (ICML)*, 2015.

OTHER
PUBLICATIONS

Elman Mansimov, Gábor Melis, Lei Yu. Capturing document context inside sentence-level neural machine translation models with self-training. *arXiv preprint*, 2020.

Elman Mansimov, Alex Wang, Sean Welleck, Kyunghyun Cho. A Generalized Framework of Sequence Generation with Application to Undirected Sequence Models. *arXiv preprint*, 2019.

INTERNSHIPS

Google Brain/Translate, New York, NY, USA (virtual due to COVID-19) *Summer 2020*
Research Intern

Research on efficient and effective practical simulation of missing sources for multi-source neural machine translation with Mia Chen, Orhan Firat and Ruoming Pang.

DeepMind, London, UK *Winter 2019/Spring 2020*
Research Intern

Research on making trained sentence-level neural machine translation models suitable for document-level translation at the test time with Gábor Melis and Lei Yu.

Google Brain/Translate, Mountain View, CA, USA *Summer 2019*
Research Intern

Research on end-to-end deep learning approaches for in-image neural machine translation with Mia Chen, Orhan Firat and Jakob Uszkoreit.

Google Brain, Montreal, QC, Canada *Summer 2018*
Research Intern

Research on application of meta learning for quick adaption of object trackers in videos with Ross Goroshin, Tyler Zhu and Hugo Larochelle.

Facebook AI Research, New York, NY, USA *Summer 2017*
Research Intern

Research on combining evolution strategy and backpropagation in deep reinforcement learning with Gabriel Synnaeve, Nicolas Usunier and Rob Fergus.

Apple Inc., Cupertino, CA, USA *Summer 2016*

Intern

Worked on application of deep reinforcement learning as part of special projects group with Jonathan Cohen and Charlie Tang.

ACADEMIC
RESEARCH

CILVR Lab, New York University
Research Assistant
Advisor: Kyunghyun Cho

September 2016 - November 2020

Machine Learning Group, University of Toronto
Research Assistant
Advisor: Ruslan Salakhutdinov

September 2014 - May 2016

TEACHING
EXPERIENCE

Teaching Assistant, New York University
Natural Language Processing with Representation Learning

Fall 2018

Teaching Assistant, University of Toronto
Introduction to Machine Learning
Introduction to Theory of Computation
Software Design

Fall 2015

Fall 2014, Winter 2015

Winter 2014

ACADEMIC
REVIEWING

Reviewer,
International Conference on Machine Learning (ICML)
Neural Information Processing Systems (NeurIPS)
International Conference on Learning Representations (ICLR)
Empirical Methods in Natural Language Processing (EMNLP)
European Chapter of the Association for Computational Linguistics (EACL)
Annual Meeting of the Association for Computational Linguistics (ACL)

2019-2021

2019, 2020

2020

2020, 2021

2021

2021

Program Committee,
Deep Generative Models for Highly Structured Data (ICLR Workshop)
Natural Language Processing Beyond Text (EMNLP Workshop)

2019

2020

Organization Committee,
NLP Beyond Text (WWW Workshop)

2021

HONORS AND
AWARDS

Conference Travel Award *NeurIPS 2017, ICLR 2016*
Full Graduate Scholarship *2016 - 2020*
Full Undergraduate Scholarship *2011 - 2015*

MEDIA ARTICLES

Art, Tech, and Tradition Dissolve in Fellowship's Paris Photo 2023 Group Show *Hypebae, October 2023*
Elon Musk's Research Venture Has Trained AI To Teach Itself *Futurism, August 2017*
The Top A.I. Breakthroughs of 2015 *Future of Life Institute, December 2015*
Computer, Draw an Open Toilet Sitting In a Grassy Field *Motherboard (Vice), November 2015*

TECHNICAL
SKILLS

Experience in Python (PyTorch, TensorFlow, MxNet), training ML/DL models on AWS