Jason Lee

Objective & Overview

Research and development of deep neural networks in mission critical applications with high impact.

Trained state-of-the-art deep learning models in various problems in language (language modeling, translation, dialogue and speech modeling) and vision (object detection, tracking and segmentation), both in research and production settings.

Employment

Tesla Autopilot, Palo Alto, CA, USA

Senior Machine Learning Scientist *Apr 2021 – present*

Member of a 17-person team training neural networks for our vision-only perception stack and shipping Full Self-Driving software to 380k+ customers in North America and general Autopilot improvements to 2M+ customers worldwide.

Portfolio:

Sole individual contributor for offline 2D panoptic segmentation neural networks. Trained models to support autolabeling, tracking, simulation and 3D perception efforts.

- Senior Director Andrej Karpathy highlighted this work in his tweet.

Led the lane geometry prediction effort to train and deploy autoregressive Transformer models for Tesla's custom AI accelerator.

- Trained and shipped models for FSD releases v10.11, v10.12, v10.13 and v10.69.
- Personally reported progress to the CEO every week.
- CEO Elon Musk highlighted this work in his tweet.

Education

New York University, New York, NY, USA

Ph.D., Computer Science *Apr 2021*

Thesis: Latent Variable Models and Iterative Refinement for Non-Autoregressive Neural Machine Translation
Advisor: Kyunghyun Cho

University of Cambridge, Cambridge, Cambridgeshire, UK

M.Phil., Advanced Computer Science *Jul 2015*

Graduated with Distinction.

B.A. Hons., Computer Science *Jun 2014*

Graduated with First Class Honours.

Referred Publications

J. Lee, R. Shu, K. Cho. Iterative Refinement in the Continuous Space for Non-Autoregressive Neural Machine Translation. Empirical Methods in Natural Language Processing (EMNLP) 2020.

J. Lee, D. Tran, O. Firat, K. Cho. On the Discrepancy between Density Estimation and Sequence Generation. Empirical Methods in Natural Language Processing (EMNLP), Workshop on Structured Prediction for NLP, 2020. **Oral**.

R. Shu, **J. Lee**, K. Cho. Latent-Variable Non-Autoregressive Neural Machine Translation with Deterministic Inference Using a Delta Posterior. AAAI Conference on Artificial Intelligence (AAAI) 2020.

I. Kulikov, **J. Lee**, K. Cho. Multi-Turn Beam Search for Neural Dialogue Modeling. Neural Information Processing Systems (NeurIPS) 2019, Conversational AI Workshop. **Oral**.

J. Lee, K. Cho., and D. Kiela. Countering Language Drift via Grounding. Empirical Methods in Natural Language Processing (EMNLP) 2019.

J. Lee, E. Mansimov, and K. Cho. Deterministic Non-Autoregressive Neural Sequence Modeling by Iterative Refinement. Empirical Methods in Natural Language Processing (EMNLP) 2018. **Oral**.

J. Lee, K. Cho, J. Weston and D. Kiela. Emergent Translation in Multi-Agent Communication. International Conference on Learning Representations (ICLR) 2018.

J. Lee, K. Cho and T. Hofmann. Fully Character-Level Neural Machine Translation without Explicit Segmentation. Transactions of the Association for Computational Linguistics (TACL) 2017.

Internships

Google Brain, Mountain View, CA, USA *May 2019–Apr 2020*

Research Intern
Performed research on latent variable models for sequence learning. Published to EMNLP 2021.

Facebook AI Research, New York, NY, USA *May–Jul 2017, May–Dec 2018*

Research Intern
Performed research on multi-agent communication with reinforcement learning. Published to ICLR 2018.

Google Research, Zürich, Switzerland *Nov 2016–May 2017*

Research Intern
Performed research on latent variable models for text.

Goldman Sachs, London, UK *Jun–Aug 2013*

Strat Analyst Intern
Applied unsupervised machine learning algorithms to divisional trading information to extract actionable insight.

Academic Research

CILVR Lab, New York University *Sep 2017–Apr 2021*

Research Assistant
Advisor: Kyunghyun Cho

Data Analytics Lab, ETH Zürich *Oct 2015–Apr 2017*

Research Assistant
Advisor: Thomas Hofmann

Teaching Experience

Teaching Assistant, Computer Science Masters Programme, ETH Zürich.
Introduction to Natural Language Processing *Feb–Jun 2016*
Machine Learning *Oct 2016–May 2017*

Teaching Assistant, Courant Institute, New York University.
Introduction to Machine Learning *Jan–May 2018*
Natural Language Processing with Representation Learning *Jan–May 2019*

Awards	Qualcomm Innovation Fellowship ($40,000 research grant)	*2016*
	Cambridge Assessment Scholarship (£25,000 academic scholarship)	*2014*

Technical Skills	Experience in Python (PyTorch, TensorFlow, MxNet)
	Unix shell scripts, MPI parallel processing library