Joanna Seoyeon Yoo

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Projects

ML in Drug Discovery and Immunotherapy for Cancer
09/2019 – 12/2019
- Built prediction model on binding affinity of protein and ligand.
- Applied domain knowledge on biochemistry, immunology, and oncology to the latest neural network models such as Graph Attention Network or Transformer.
- Currently collaborating with Green Cross Korea to help the drug discovery process.

Three-way Recommendation Engine
09/2018 – 08/2019
- Analyzed user activities, articles, and products and built personalized article and product recommendation engine by leveraging three-way inputs.
- Ensemble of collaborative filtering, doc2vec, NLP, computer vision, KNN, and classification.

Currency Classifier
02/2018 – 09/2018
- Designed a computer vision algorithm that accurately classifies 276 different banknotes from 46 countries.
- Currently deployed in KEB Hana Bank, leading international financial bank in South Korea.

Personal MIDI Vocoder
02/2018 – 04/2018
- Created a vocoder that translates MIDI sequence to my own voice using tacotron2 and wavenet.

Work experience

Machine Learning Engineer
Startup in stealth
01/2020 – present ⊙ TORONTO, CANADA
- Research and develop deep learning models and optimization tactics

Minds Lab
02/2017 – 12/2019 ⊙ PANGYO, SOUTH KOREA
- Researched, designed, built, and deployed machine learning projects that solve problems in various industries, such as pharmaceutical, banking, government, and call centers.

ShopBonsai
10/2018 – 09/2019
- Deployed a scalable, real-time recommendation engine.
- Participated in building a DevOps pipeline that monitors the production environment.

Education

Mathematics
University of British Columbia
09/2011 – 06/2016 ⊙ VANCOUVER, CANADA
- Overall GPA: 3.7/4.0
- Strong background in Probability and Statistics
- Awarded President's Entrance Scholarship, British Columbia Government Scholarship, and Dean of Science Scholarship

Jazz Studies - Bass
Capilano University
09/2015 – 05/2018 ⊙ NORTH VANCOUVER, CANADA

Skills

ⓘ DEEP LEARNING MODELS

Transformer & variants
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Graph Neural Networks
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Sequence Models
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Computer Vision
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Generative Models
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ⓘ MACHINE LEARNING & STATISTICS

Bayesian Machine Learning
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Markov Decision Process
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ⓘ DEEP LEARNING FRAMEWORK

Tensorflow
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Pytorch
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ⓘ PROGRAMMING LANGUAGES

Python
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C++
●●●○○

R
●●●○○

ⓘ DATABASE

MongoDB
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ElasticSearch
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PostgreSQL
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ⓘ CLOUD COMPUTING

Google Cloud Computing
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Amazon AWS
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Publications

SliceOut: Training Transformers and CNNs faster while using less memory

🗓 07/2020

https://arxiv.org/abs/2007.10909

- New dropout scheme designed to take advantage of GPU memory layout.
- Demonstrate 10-40% speedups and memory reduction with Wide ResNets, EfficientNets, and Transformer models, with minimal to no loss in accuracy.
- Training speedups through (1) fast memory access and matrix multiplication of smaller tensors, and (2) memory savings by avoiding allocating memory to zero units in weight gradients and activations.

Awards

First Place - K-Pitch

🗓 11/2017

K-Global , Silicon Valley

- Awarded the first place of the pitch competition from K-pitch, the largest Korean start-up event in Silicon Valley.