Hyeongchan Kim

https://github.com/kozistr, http://kozistr.tech/about

EDUCATION

Korea University of Technology and Education Mar 2016 –

CHALLENGES & AWARDS

Kaggle Challenges :: Competition Expert

top 7% **Shopee – Price Match Guarantee** (166 / 2426), 2021.
top 2% **Cornell Birdcall Identification** (24 / 1395), 2020.
top 9% **ALAKSA2 Image Steganalysis** (93 / 1095), 2020.
top 4% **Tweet Sentiment Extraction** (84 / 2227), 2020.
top 4% **Flower Classification with TPUs** (27 / 848), 2020.
top 4% **Bengali.AI Handwritten Grapheme Classification** (67 / 2059), 2020.
top 3%, **Kannada MNIST Challenge** (28 / 1214), 2019.

Domestic Challenges

6th place, **NAVER NLP Challenge**, SRL Task, 2018.
4th / 13th place, **NAVER A.I Hackathon**, 2018.
Final Round (Digital Forensic), **A.I R&D Challenge**, 2018.
9th place (3rd price, A book as an award), **TF-KR MNIST Challenge**, 2017.

Capture The Flag (CTF)

2nd place (Demon), **Boot2Root** CTF, 2018.
Staff, Challenge Maker, **HackingCamp 17**, 2018.
2nd place (Demon), **WhiteHat League 1**, 2017.
3rd place (SeoulWesterns), **Harekaze CTF**, 2017.

Hosts & Staffs

Staff, **Belluminar CTF** (by POC), 2017.
Challenge Maker, **KID CTF** (by POC), 2017.
Challenge Maker, **Power of XX CTF** (by POC), 2017.
Staff & Challenge Maker, **HackingCamp 16** (by POC), 2017.
Staff & Challenge Maker, **CodeGate OpenCTF**, 2017.
Staff & Challenge Maker, **HackingCamp 15** (by POC), 2017.
Conference Staff**, POC,** 2016.

PUBLICATIONS

[2] Kim et al, CNN ARCHITECTURE PREDICTING MOVIE RATING FROM AUDIENCE'S REVIEWS WRITTEN IN KOREAN. Jan. 2020.

[1] zer0day, Windows Anti-Debugging Techniques (CodeEngn Archive) Sep. 2016.

INDUSTRY EXPERIENCE

Watcha, Seoul, South Korea — Jun 2020 – Present

Machine Learning Researcher

- Developed a training recipe to train sequential recommendation architecture robustly. (In service), (named *FutureFLAT*)
  - Build a new module to understand better at the time of inference.
  - Apply augmentations to the various features, leads to performance gain and robustness.
  - In A/B (online) test, FLAT vs FutureFLAT (statistically significant p-value < 0.05)
    - Compared to the previous model, there's been no (statistically significant) change.
    - However**,** it still seems to be better on the **offline metrics** & **training stability**. So, we chose to use it.
  - In A/B (online) test, Div2Vec vs FutureFLAT (statistically significant p-value < 0.05)
    Viewing Days (mean) : improved **1.012%+**
    Viewing Minutes (median) : improved **1.015%+**
- Developed the model to predict users' view-time of the contents.
  - Predict how many people going to watch, how much time people going to watch the content before the content is supplied.
  - Find out which features impact users' watch.
- Developed the pipeline to recognize main actors from the poster & still-cut images.
  - Utilize SOTA face detector & recognizer.
  - Optimize pre/post-processing routines for low latency.
- Developed a novel sequential recommendation architecture to recommend what content to watch next. (In service), (named *FLAT*)
  - Achieve SOTA performance compared to previous SOTA architectures (e.g. *BERT4Rec*).
  - In A/B (online) test, previous algorithms vs FLAT (statistically significant p-value < 0.05)
    Paid Conversion: improved **1.39%p+**
    Viewing Days: improved **0.25%p+**
    Viewing Minutes (median): improved **4.10%p+**
    Click Ratio: improved **4.30%p+**

Play Ratio: improved **2.32%p+**

- Developed Image Super-Resolution model to upscale movie & tv posters, still-cuts.
  - Optimize the codes for fast inference time & memory-efficiency on CPU.
  - In internal evaluation (qualitative evaluation by the designers), it catches details better & handles higher resolution & takes a little time.
  - Working as a full-time.

Rainist, Seoul, South Korea Nov 2019 – Jun 2020

Machine Learning Engineer

- Developed the category classification model of card transactions, designed lightweight purpose for low latency. (In service)
  - In A/B (online) test (statistically significant p-value < 0.05)
    ***Accuracy:** improved about **25 ~ 30%p**
- Developed the RESTful API server to serve machine learning model (utilized k8s and open source project).
  - **zero failure rate** (zero 40x 50x error)
- Developed the classification model, forecasting the possibility of loan overdue.
- Worked as a full-time.

% *Accuracy: how many people don't update/change their transactions' category.

VoyagerX, Seoul, South Korea Jan 2019 – Sep 2019

Machine Learning Engineer

- Developed speaker verification & diarization models to recognize the arbitrary speakers recorded from the noisy environments.
- Developed a semantic image segmentation model to identify a region of hair.
- Developed an image in-paint model to remove hair naturally from the face.
- Worked as an intern.

ELCID, Pangyo, Korea Jun 2016 - Aug 2016

Penetration Tester

- Penetrated some products related to network firewall and anti-virus.
- Worked as a part-time job.

OUTSOURCING

Korea University Course Information Web Parsing, ITL July 2017 – Mar 2018
AWS CloudTrail logger analyzer / formator, ELCID Sep 2019 – Oct 2019

RESEARCH EXPERIENCE

Heterogeneous Parallel Computing Lab, Cheonan, Korea Sep 2018 - Dec 2018
Undergraduate Research

- Wrote a paper about an improved TextCNN architecture to predict movie rate.

TALKS

NAVER NLP Workshop 2018, Pangyo, Korea Dec 2018

- SRL Task, challenging without any domain knowledge

PROJECTS

Generative

Awesome Generative Adversarial Networks (Stars 615+) July 2017 –
Implement lots of Generative Adversarial Networks in TF 1.x. & 2.x. Novelty of this project is implementing lots of GANs in TF 1.x & 2.x based on the papers with some tweaks.

gan-metrics (Stars 5) Mar 2020 –
Implement lots of metrics for evaluating GAN in pytorch.

I2I Translation

Improved Content Disentanglement (Stars 3+) Sep 2019
Re-implement / tune 'Content Disentanglement' paper in pytorch.

Image Inpainting

Improved Edge-Connect (Stars 9) Oct 2019
Re-implement / tune 'Edge-Connect' paper in pytorch.

Style Transfer

Neural Image Style Transfer Mar 2018
Implement a neural image style transfer.

Segmentation

Awesome Segmentation (Stars 65+) Aug 2018
Implement lots of image semantic segmentation and ordered the papers.

Optimizer

AdaBound Optimizer (Stars 40+) Jan 2019
Implement AdaBound Optimizer (Luo et al. 2019) w/ some tweaks in tensorflow.

RAdam Optimizer (Stars 4+) Sep 2019
Implement RAdam Optimizer (Liu et al. 2019) w/ some tweaks in tensorflow.

Super Resolution	**Deep Residual Channel Attention Network (Stars 40+)** Implement a RCAN model in tensorflow.	Sep 2018
	Enhanced Super Resolution GAN (Stars 30+) Implement an ESRGAN model in tensorflow.	Jun 2019
	Natural and Realistic SISR w/ Explicit NMD (Stars 5+) Implement a NatSR model in pytorch.	Apr 2020
NLP	**Improved TextCNN (Stars 4+)** Implement an improved TextCNN model (Kim et al. 2020)	Dec 2018
	Text Tagging Implement a text category classifier in tensorflow.	Dec 2018
R.L	**Rosetta Stone (Stars 510+)** Hearthstone simulator using C++ w/ some R.L. I contributed to the project by implementing `feature extractor` and `neural network' in libtorch++.	Sep 2018-
Speech Synthesis	**Tacotron** Implement a google tacotron speech synthesis in tensorflow.	Jan 2019
Open Source Contributions	**syzkaller** New Generation of Linux Kernel Fuzzer :: Minor contribution #575	Apr 2018
	simpletransformers Transformers made simple with training, evaluating, and prediction possible with one line each :: Minor contribution #290	Apr 2020