Taehoon Kim

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EDUCATION

Ulsan National Institute of Science and Technology, Ulsan, South Korea
B.S. in Computer Science & Engineering, Electrical Engineering — Mar 2011 – Aug 2015

AWARDS

Best Paper Award, DataCom 2015 — Dec 2015
Best Paper Award for Extracting Baseline Electricity Usage Using Gradient Tree Boosting

Finalist, ISC Student Cluster Challenge — Jun 2014
One of 11 international teams (including MIT, Tsinghua Univ) selected through the preliminary contest

3rd place, Korea Whitehat Hacking Contest 2013 — Sep 2013
Awarded by the Minister of National Defense. Received an award of $8,000

1st place, Holyshield Hacking Contest 2013 — Nov 2013
Awarded by the President of Catholic University of Korea. Received an award of $1,000.

Finalist, Asia student Supercomputing Challenge 14 — Apr 2014
One of 16 teams among 82 international teams selected through the preliminary contest

Finalist, Asia student Supercomputing Challenge 13 — Jan 2013
One of 10 teams among 43 international teams selected through the preliminary contest

Outstanding Graduate Award, Ministry of Science, ICT and Future Planning — Feb 2016
Chosen as one of all graduates, awarded by the Minister of Science, ICT and Future Planning

Outstanding Student Award 2014, UNIST — Dec 2014

Outstanding Student Award 2013, UNIST — Jan 2014

PUBLICATIONS

CONFERENCES

1) T. Kim and J. Choi, **Reading documents for bayesian Online Change Point Detection**, in *Empirical Methods on Natural Language Processing* (EMNLP 2015). Sep 2015.

2) T. Kim, D. Lee, J. Choi, A. Spurlock, A. Sim, A. Todd, K. Wu, **Extracting Baseline Electricity Usage Using Gradient Tree Boosting**, in *2015 International Conference on Big Data Intelligence and Computing* (DataCom 2015), **Best Paper Award**. Dec 2015.

JOURNALS

3) T. Kim, D. Lee, J. Choi, A. Spurlock, A. Sim, A. Todd, K. Wu, **Predicting Baseline for Analysis of Electricity Pricing**, in *International Journal of Big Data Intelligence*. Jun 2016.

4) J. Lee, K. Lee, C. Han, T. Kim, and S. Chong, **Resource-efficient Mobile Multimedia Streaming with Adaptive Network Selection**, in *IEEE Transactions on Multimedia (IF: 2.536)*. Aug 2016.

EXPERIENCE

Devsisters, Seoul, South Korea
Research Engineer — Apr 2016 – Present
- Propose an attention-based Reinforcement Learning (RL) model to solve hierarchical RL problems guided by step-by-step manuals (collaborate research with Prof. Joseph Lim)
- Build automatic game balancing framework with Double Q-learning, Dueling network, Prioritized replay memory and used prediction on beneficial and dangerous events as intrinsic rewards
- Working as a substitute of mandatory military service

Vingle, Seoul, South Korea
Software Engineer — Oct 2015 – Apr 2016
- Build a prediction model for age and gender only with the user's action pattern in the services
- Worked as a substitute of mandatory military service

Lawrence Berkeley National Laboratory, California, USA
Undergraduate Research Student — Jul 2015 – Aug 2015
- Identify energy usage patterns in smart meter data, and relate the patterns to actions of households
- Propose baseline usage models for each household to cluster the households into different groups

Probabilistic Artificial Intelligence Lab, UNIST
Undergraduate Research Student — Sep 2014 – Sep 2015
- Improved Bayesian Online Change Point Detection by Reading Texts
- Food image recognition by combining deep convolutional features and shallow encoded features

Moloco, California, USA
Software Engineering Intern — Oct 2014 – Jan 2015
- Implement a maximum-likelihood estimation model of the number of users who will download an application
- Build a web visualization of models from a large-scale database with query optimization and a cache system

Naver Labs, Seoul, South Korea
Software Engineering Intern — Jul 2014 – Aug 2014
- Build a cloud comment hosting service using Django and Angular.js

Mobile Smart Networking Laboratory, UNIST
Undergraduate Research Student — Jan 2013 – Aug 2014
- Optimizing Mobile Video Streaming: From Context-aware Scheduling to Cloud-assisted Caching

SCHOLARSHIPS

Global Scholarship for Undergraduate Research Opportunities Program, UNIST — 2015
Received $3,000 as a financial support for research internship at Lawrence Berkeley National Laboratory

Academic Performance Scholarship, UNIST — 2011 – 2015

National Science and Engineering Scholarship, Korean Student Aid Foundation — 2013

PROJECTS

GAN

DCGAN in TensorFlow — Jan 2016
Implemented Deep Convolutional Generative Adversarial Networks (Radford et, al. 2015)
The code is used in more than 15 papers including:
- Improved Techniques for Training GANs (Salimans et, al. 2016) from OpenAI
- Least Squares Generative Adversarial Networks (Mao et, al. 2016)
- Semi-supervised learning with generative adversarial networks (Odena et, al 2016)

BEGAN in TensorFlow — Apr 2017
Implemented BEGAN: Boundary Equilibrium Generative Adversarial Networks (Berthelot et, al. 2017)
The code is used in following papers:
- GANs Trained by a Two Time-Scale Update Rule Converge to a Nash Equilibrium (Heusel et, al 2017)
- MAGAN: Margin Adaptation for Generative Adversarial Networks (Wang et, al. 2017)

BEGAN in PyTorch — Apr 2017
Implemented BEGAN: Boundary Equilibrium Generative Adversarial Networks (Berthelot et, al. 2017) in PyTorch

DiscoGAN in TensorFlow — Mar 2017
Implemented Learning to Discover Cross-Domain Relations with Generative Adversarial Networks (Kim et, al. 2017)

Simulated+Unsupervised learning in TensorFlow — Jan 2017
Implemented Learning from Simulated and Unsupervised Images through Adversarial Training (Shrivastava et, al. 2016)

Pixel Recurrent Neural Networks — Jul 2016
Implemented Pixel Recurrent Neural Networks (Oord et, al. 2016)

Deep Visual Analogy-Making in TensorFlow — Feb 2016
Implemented Deep Visual Analogy-Making (Reed et, al. 2015)

Neural Face — Jan 2016
A web application that generates Asian face images with DCGAN-tensorflow and convnet.js

RL

Normalized Advantage Functions in TensorFlow — Jul 2016
Implemented Continuous Deep Q-Learning with Model-based Acceleration Learning (Gu et, al. 2016)

Dueling Network in TensorFlow — Jul 2016
Implemented Dueling Network Architectures for Deep Reinforcement Learning (Wang et, al. 2015)

Deep Q-network in TensorFlow — Jun 2016
Implemented Pointer Networks (Vinyals et, al. 2015) in TensorFlow

A3C in TensorFlow — Jun 2016
Implemented Asynchronous Methods for Deep Reinforcement Learning (Mnih et, al. 2016)

NLP

Neural Variational Inference for Text Processing in TensorFlow May 2016
Implemented Neural Variational Inference for Text Processing (Miao et, al. 2015)
The code is used in following papers:
- Autoencoding Variational Inference For Topic Models (Srivastava et, al. 2017)
- Neural Variational Inference For Topic Models (Srivastava et, al. 2016)

Character-Aware Neural Language Models in TensorFlow Feb 2016
Implemented Character-Aware Neural Language Models (Kim et, al. 2016)

Teaching Machines to Read and Comprehend in TensorFlow Jan 2016
Implemented Teaching Machines to Read and Comprehend (Hermann et, al. 2015)

End-To-End Memory Networks in TensorFlow Dec 2015
Implemented End-To-End Memory Networks (Sukhbaatar et, al. 2015)

Poet Neural, *AI that generates Korean poetry* Jun 2015
Build a generative model for Korean poetry using neural network for Character-level Language and a web demo

ReviewDuk, *Korean sentiment analyzer* Jan 2015
Build a Korean sentiment analyzer using logistic regression and Korean Movie Review dataset

ETC

Pointer Network in TensorFlow Jan 2017
Implemented Learning to Discover Cross-Domain Relations with Generative Adversarial Networks (Kim et, al. 2015)

Neural Turing Machine in TensorFlow Dec 2015
Implemented Neural Turing Machine (Graves et, al. 2014) in TensorFlow

Reverse Engineering, *LINE, KakaoTalk, Between, Ndrive, and Korail* Aug 2014
Reverse engineered 1) LINE, 2) KakaoTalk, 3) Between, 4) Ndrive, and 5) Korail and wrote python libraries

REFERENCES

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School of Electrical and Computer Engineering
Ulsan National Institute of Science and Technology
50 UNIST, EB3 Rm 501-10, Ulsan, 44919, Korea
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