# 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

**DCGAN in TensorFlow**, *Geneartive model* — Jan 2016
Implemented Deep Convolutional Generative Adversarial Networks (Radford et, al. 2015) in TensorFlow
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)

**Neural Variational Inference for Text Processing in TensorFlow**, *Question answering* — May 2016
Implemented Neural Variational Inference for Text Processing (Miao et, al. 2015) in TensorFlow
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)

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

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

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

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

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

**Pixel Recurrent Neural Networks**, *Generative model* — Jul 2016
Implemented Pixel Recurrent Neural Networks (Oord et, al. 2016) in TensorFlow

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

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

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

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

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

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

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

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

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

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

**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

**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

**Joseph Lim**
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**Jaesik Choi**
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