

Taehoon Kim

<https://carpedm20.github.io/>

EDUCATION	Ulsan National Institute of Science and Technology (UNIST) • B.S. in Computer Science and Engineering • Graduated with Outstanding Graduate Award (ranked 1 st out of 509 undergraduates)	Mar 2011 – Aug 2015
PUBLICATIONS	<p>[7] K. Cobbe, O. Klimov, C. Hesse, <u>T. Kim</u>, J. Schulman, Quantifying Generalization in Reinforcement Learning, arXiv, 2018</p> <p>[6] Y. Lee, <u>T. Kim</u>, J. Lim, Teaching Machines to Understand Visual Manuals via Attention Supervision for Object Assembly, Submitted, 2018</p> <p>[5] H. Noh, <u>T. Kim</u>, J. Mun, B. Han, Transfer Learning via Unsupervised Task Discovery for Visual Question Answering, arXiv, 2018</p> <p>[4] <u>T. Kim</u>, J. Choi, D. Lee, A. Sim, C. A. Spurlock, A. Todd, K. Wu, Predicting Baseline for Analysis of Electricity Pricing, In <i>International Journal of Big Data Intelligence (IJBDI)</i>, 2016</p> <p>[3] J. Lee, K. Lee, C. Han, <u>T. Kim</u>, S. Chong, Resource-efficient Mobile Multimedia Streaming with Adaptive Network Selection, In <i>IEEE Transactions on Multimedia</i>, 2016</p> <p>[2] <u>T. Kim</u>, J. Choi, Reading documents for bayesian Online Change Point Detection, In <i>Empirical Methods in Natural Language Processing (EMNLP)</i>, 2015</p> <p>[1] <u>T. Kim</u>, D. Lee, J. Choi, A. Spurlock, A. Sim, A. Todd, K. Wu, Extracting Baseline Electricity Usage Using Gradient Tree Boosting, In <i>International Conference on Big Data Intelligence and Computing (DataCom)</i>, 2015, Best Paper Award</p>	
RESEARCH EXPERIENCE	OpenAI , San Francisco, USA <i>Research Engineer (Advisor: John Schulman)</i>	Sep 2018 – Present
	Cognitive Learning for Vision and Robotics Lab , USC, Los Angeles, USA <i>Visiting Researcher (Advisor: Prof. Joseph J. Lim)</i> • Developed attention-based agents which are guided by step-by-step visual instructions to solve hierarchical tasks such as assembling IKEA furniture. Trained agents with self-supervision and semi-supervised learning to achieve generalization of unseen shapes and colors [5].	Jan 2017 – Sep 2018
	Lawrence Berkeley National Laboratory , Berkeley, USA <i>Research Intern (Advisors: John Wu, Alex Sim)</i> • Developed baseline models of electricity usage data to find reference usage patterns for different household groups. Used gradient boosting algorithm to capture differences of daily peak usages between groups and analyzed baseline of each group by controlling highly correlated features [1, 4].	Jul 2015 – Aug 2015
	Statistical Artificial Intelligence Lab , UNIST, South Korea <i>Research Intern (Advisor: Prof. Jaesik Choi)</i> • Improved Bayesian changepoint detection models by incorporating external information implicitly written in texts. Incorporated documents as a conditional variable of changepoint prior so that model learns a generative model of texts which represents a relation between textual features and change of data [2].	Sep 2014 – Sep 2015
	Mobile Smart Networking Laboratory , UNIST <i>Research Intern (Advisor: Prof. Kyunghan Lee)</i> • Implemented algorithm for mobile video streaming with context-aware scheduling and caching [3].	Jan 2013 – Aug 2014
INDUSTRY EXPERIENCE	Devsisters , Seoul, South Korea Research Engineer • Developed framework for automatic game balancing with deep reinforcement learning including Double Q-learning, Dueling Network, and Prioritized Replay Memory. • Implemented generative adversarial networks and multi-speaker speech synthesis models. • Worked as a substitute for mandatory military service.	Apr 2016 – Aug 2018

Vingle , Seoul, South Korea	
Software Engineer	Oct 2015 – Apr 2016
<ul style="list-style-type: none"> Developed system for personal push notification and statistical data visualization of user retention. Worked as a substitute for mandatory military service. 	
Moloco , California, USA	Oct 2014 – Jan 2015
Software Engineering Intern	
<ul style="list-style-type: none"> Implemented prediction models that target advertisements of mobile application based on purchase history. Developed online data visualization with a large-scale database using cache and query optimization. 	
NAVER Labs , Seoul, South Korea	Jul 2014 – Aug 2014
Software Engineering Intern	
<ul style="list-style-type: none"> Developed front-end and back-end of web application for cloud comments. 	

HONORS & AWARDS

Best Paper Award, International Conference on Big Data Intelligence and Computing (DataCom) 2015
 AI Grant Fellowship (\$2,500 cash + \$20,000 credit as award), 2018
 Outstanding Graduate Award, UNIST, 2015
 Dean's List, UNIST, 2013, 2014
 Finalist, International Student Cluster Challenge, International Conference on Supercomputing (ICS), 2014
 Finalist, Asia student Supercomputing Challenge (ASC), 2014
 Finalist, Korea Whitehat Hacking Competition, 2014
 3rd place (\$ 8,000 as awards), Korea Whitehat Hacking Competition, 2013
 1st place (\$ 1,000 as awards), The Catholic University of Korea Hacking Competition, 2013
 Finalist, Asia student Supercomputing Challenge (ASC), 2013

TALKS

DEVVIEW 2016 & 2017 , Seoul, South Korea	2016, 2017
<ul style="list-style-type: none"> Multi-Speaker Speech Synthesis with Attention-Based Deep Learning. How to build a Framework for Automatic Game Balancing with Deep Reinforcement Learning. 	
NAVER Clova AI 2017 & 2018 , Seoul, South Korea	2017
<ul style="list-style-type: none"> Recent Advancement of Deep Reinforcement Learning from Multi-Agent to Meta-Learning. 	
PyCon APAC 2016 , Seoul, South Korea	2016
<ul style="list-style-type: none"> Deep Convolutional GAN, Neural Turing Machine, Deep Q-learning and Visual Analogy. 	
TensorFlow Korea , Seoul, South Korea	2016
<ul style="list-style-type: none"> End-to-End Memory Network and Asynchronous Advantageous Actor-Critic method. 	

PROJECTS

GENERATIVE

Deep Convolutional GAN (★ 5.1k+*)	Jan 2016
Implemented Deep Convolutional Generative Adversarial Networks (Radford et, al. 2015) and web demo with <i>convnet.js</i> The code is referenced in more than 25 papers including: <ul style="list-style-type: none"> 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) 	
Boundary Equilibrium GAN (★ 700+)	Apr 2017
Implemented BEGAN: Boundary Equilibrium Generative Adversarial Networks (Berthelot et, al. 2017) The code is used in the following papers: <ul style="list-style-type: none"> 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) 	
Multi-Speaker Speech Synthesis (★ 200+)	Oct 2017
Implemented Deep Voice 2: Multi-Speaker Neural Text-to-Speech (Berthelot et, al. 2017)	
Discovering Cross-Domain GAN (★ 700+)	Mar 2017
Implemented Learning to Discover Cross-Domain Relations with Generative Adversarial Networks (Kim et, al. 2017)	
Simulated+Unsupervised Learning GAN (★ 400+)	Jan 2017
Implemented Learning from Simulated and Unsupervised Images through Adversarial Training (Shrivastava et, al. 2016)	

*The number of stars a repository has on github.com/carpedm20

	Pixel Recurrent Neural Networks (★ 300+) Implemented Pixel Recurrent Neural Networks (Oord et, al. 2016)	Jul 2016
	Deep Visual Analogy-Making (★ 200+) Implemented Deep Visual Analogy-Making (Reed et, al. 2015)	Feb 2016
PROGRAM INDUCTION	Reinforcement Learning Program Synthesis Implemented Leveraging Grammar and Reinforcement Learning for Neural Program Synthesis (Under review, 2017)	Dec 2017
	Pointer Network (★ 200+) Implemented Pointer Networks (Vinyals et, al. 2015)	Jan 2017
	Neural Turing Machine (★ 900+) Implemented Neural Turing Machine (Graves et, al. 2014)	Dec 2015
RL	Synthesizing Programs for Images using Reinforced Adversarial Learning Implemented Synthesizing Programs for Images using Reinforced Adversarial Learning (Ganin et, al. 2018)	Apr 2018
	Efficient Neural Architecture Search via Parameters Sharing (★ 1.3k+) Implemented Efficient Neural Architecture Search via Parameters Sharing (Pham et, al. 2018)	Feb 2018
	Normalized Advantage Functions (★ 100+) Implemented Continuous Deep Q-Learning with Model-based Acceleration Learning (Gu et, al. 2016)	Jul 2016
	Dueling Double Q-Learning (★ 1.3k+) Implemented Dueling Network Architectures for Deep Reinforcement Learning (Wang et, al. 2015)	Jul 2016
	Deep Q-Network (★ 1.8k+) Implemented Human-Level Control through Deep Reinforcement Learning (Vinyals et, al. 2015)	Jun 2016
	Asynchronous Advantageous Actor-Critic Implemented Asynchronous Methods for Deep Reinforcement Learning (Mnih et, al. 2016)	Jun 2016
NLP	Neural Variational Inference for Text Processing (★ 400+) Implemented Neural Variational Inference for Text Processing (Miao et, al. 2015) The code is used in the following papers: <ul style="list-style-type: none"> • Autoencoding Variational Inference For Topic Models (Srivastava et, al. 2017) • Neural Variational Inference For Topic Models (Srivastava et, al. 2016) 	May 2016
	Character-Aware Neural Language Models (★ 500+) Implemented Character-Aware Neural Language Models (Kim et, al. 2016)	Feb 2016
	End-To-End Memory Networks (★ 600+) Implemented End-To-End Memory Networks (Sukhbaatar et, al. 2015)	Dec 2015

REFERENCES

Joseph J. Lim

Assistant Professor

Department of Computer Science
University of Southern California
Email: lim@csail.mit.edu

Jaesik Choi

Associate Professor

School of Electrical and Computer Engineering
Ulsan National Institute of Science and Technology
Email: jaesik@unist.ac.kr

John Wu

Group Leader

Scientific Data Management Group
Lawrence Berkeley National Laboratory
Email: kwu@lbl.gov

Alex Sim

Senior Computing Engineer

Scientific Data Management Group
Lawrence Berkeley National Laboratory
Email: asim@lbl.gov