

Taehoon Kim

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

INTERESTS	Reasoning, Program Induction, Reinforcement Learning (RL)	
EDUCATION	Ulsan National Institute of Science and Technology (UNIST) • B.S. in Computer Science and Engineering • <i>Cumulative GPA: 3.73 / 4.30 (Magna Cum Laude)</i> • Graduated with Outstanding Graduate Award (ranked 1 st out of 509 undergraduates)	Mar 2011 – Aug 2015
HONORS AND AWARDS	Best Paper Award [1], DataCom 2015 Outstanding Graduate Award, UNIST, 2015 Academic Performance Scholarship, UNIST, 2011 – 2015 Dean's List, UNIST, 2013, 2014 Global Scholarship for Undergraduate Research Opportunities Program (UROP), UNIST, 2015 3 rd place, NAVER & UNIST Hackathon, 2015 Finalist, International Student Cluster Challenge, International Conference on Supercomputing (ICS), 2014 Finalist, Asia student Supercomputing Challenge (ASC), 2014 Finalist, Korea Whitehat Hacking Competition, 2014 3 rd place (\$ 8,000 as awards), Korea Whitehat Hacking Competition, 2013 1 st place (\$ 1,000 as awards), The Catholic University of Korea Hacking Competition, 2013 Finalist, Asia student Supercomputing Challenge (ASC), 2013 National Science and Technology Scholarship, Korean Student Aid Foundation, 2013	
PUBLICATIONS	<p>[5] <u>T. Kim</u>[†], Y. Lee[†] and J. Lim, Teaching Machines to Understand Visual Manuals via Attention Supervision for Object Assembly, Working in progress, 2017</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>, and 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> and 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	University of Southern California , Los Angeles, USA <i>Visiting Researcher (Advisor: Prof. Joseph J. Lim)</i> • Proposed attention-based agents guided by step-by-step visual instructions to solve hierarchical tasks [5]. • Studied learning to execute sequences of visual instructions to solve sequential tasks.	Jan 2017 – Present
	Lawrence Berkeley National Laboratory , Berkeley, USA <i>Research Intern (Advisors: John Wu, Alex Sim)</i> • Proposed baseline usage models for each household to cluster the households into different groups [4]. • Identified energy usage patterns and cluster actions of households through gradient boosted trees [1].	Jul 2015 – Aug 2015
	Statistical Artificial Intelligence Lab , UNIST, South Korea <i>Research Intern (Advisor: Prof. Jaesik Choi)</i> • Proposed Bayesian model conditioned on text to predict change points in time series data [2]. • Gave poster presentation on [2] at <i>Empirical Methods in Natural Language Processing (EMNLP)</i> 2015.	Sep 2014 – Sep 2015
	Mobile Smart Networking Laboratory , UNIST <i>Research Intern (Advisor: Prof. Kyunghan Lee)</i> • Developed algorithm for optimized mobile video streaming with context-aware scheduling and caching [3].	Jan 2013 – Aug 2014

INDUSTRY EXPERIENCE	Devsisters , Seoul, South Korea Research Engineer <ul style="list-style-type: none"> Developed automatic game balancing framework with Double Q-learning, Dueling network, Prioritized replay memory and used prediction on beneficial and dangerous events as intrinsic rewards. Implemented generative models including BEGAN and multi-speaker speech synthesis models like Tacotron. Worked as a substitute of mandatory military duty. 	Apr 2016 – Present
	Vingle , Seoul, South Korea Software Engineer <ul style="list-style-type: none"> Developed a personal push notification system and a statistical data visualization for user retention. Developed a prediction model for age and gender from mobile app usage pattern. Work as a substitute of mandatory military duty. 	Oct 2015 – Apr 2016
	Moloco , California, USA <i>Software Engineering Intern</i> <ul style="list-style-type: none"> Implemented maximum-likelihood estimation model of the number of users who will download an application. Developed web visualization of models from a large-scale database with query optimization and cache system. 	Oct 2014 – Jan 2015
	NAVER Labs , Seoul, South Korea <i>Software Engineering Intern</i> <ul style="list-style-type: none"> Developed front-end and back-end of cloud comment hosting service. 	Jul 2014 – Aug 2014
TALKS	DEVVIEW 2016 & 2017 , Seoul, South Korea <ul style="list-style-type: none"> Multi-Speaker Speech Synthesis with Attention-Based Deep Learning. Automatic Game Balancing Framework with Deep Reinforcement Learning. 	2016, 2017
	NAVER Clova , Seoul, South Korea <ul style="list-style-type: none"> Recent Advancement of Deep Reinforcement Learning from Multi-Agent to Meta Learning. 	2017
	PyCon APAC 2016 , Seoul, South Korea <ul style="list-style-type: none"> Deep Convolutional GAN, Neural Turing Machine, Deep Q-learning and Visual Analogy. 	2016
	TensorFlow Korea , Seoul, South Korea <ul style="list-style-type: none"> End-to-End Memory Network and Asynchronous Advantageous Actor-Critic method. 	2016
LEADERSHIP	President of Computer Security Club , UNIST <ul style="list-style-type: none"> Led domestic and international hacking competitions (\$ 9,000 as total awards). Participated 3 international supercomputing challenges (3 Finalist awards). Reported vulnerabilities on 3 commercial mobile and web services. 	2012 – 2013
PROJECTS		
GENERATIVE	DCGAN in TensorFlow (★ 3.1k+*) Implemented Deep Convolutional Generative Adversarial Networks (Radford et, al. 2015) 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) 	Jan 2016
	BEGAN in TensorFlow (★ 500+) Implemented BEGAN: Boundary Equilibrium Generative Adversarial Networks (Berthelot et, al. 2017) The code is used in 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) 	Apr 2017
	Multi-Speaker Speech Synthesis in TensorFlow Implemented Deep Voice 2: Multi-Speaker Neural Text-to-Speech (Berthelot et, al. 2017) in TensorFlow	Oct 2017
	BEGAN in PyTorch (★ 200+) Implemented BEGAN: Boundary Equilibrium Generative Adversarial Networks (Berthelot et, al. 2017) in PyTorch	Apr 2017

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

	DiscoGAN in PyTorch (★ 500+) Implemented Learning to Discover Cross-Domain Relations with Generative Adversarial Networks (Kim et, al. 2017)	Mar 2017
	Simulated+Unsupervised learning in TensorFlow (★ 300+) Implemented Learning from Simulated and Unsupervised Images through Adversarial Training (Shrivastava et, al. 2016)	Jan 2017
	Pixel Recurrent Neural Networks (★ 300+) Implemented Pixel Recurrent Neural Networks (Oord et, al. 2016)	Jul 2016
	Deep Visual Analogy-Making in TensorFlow (★ 200+) Implemented Deep Visual Analogy-Making (Reed et, al. 2015)	Feb 2016
	Neural Face A web application that generates Asian face images with DCGAN-tensorflow and convnet.js	Jan 2016
RL	Normalized Advantage Functions in TensorFlow (★ 100+) Implemented Continuous Deep Q-Learning with Model-based Acceleration Learning (Gu et, al. 2016)	Jul 2016
	Dueling Network in TensorFlow (★ 1k+) Implemented Dueling Network Architectures for Deep Reinforcement Learning (Wang et, al. 2015)	Jul 2016
	Deep Q-network in TensorFlow (★ 1.3k+) Implemented Deep Q-Network (Vinyals et, al. 2015) in TensorFlow	Jun 2016
	Asynchronous Advantageous Actor-Critic in TensorFlow Implemented Asynchronous Methods for Deep Reinforcement Learning (Mnih et, al. 2016)	Jun 2016
NLP	Neural Variational Inference for Text Processing in TensorFlow (★ 400+) Implemented Neural Variational Inference for Text Processing (Miao et, al. 2015) The code is used in 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 in TensorFlow (★ 500+) Implemented Character-Aware Neural Language Models (Kim et, al. 2016)	Feb 2016
	End-To-End Memory Networks in TensorFlow (★ 500+) Implemented End-To-End Memory Networks (Sukhbaatar et, al. 2015)	Dec 2015
ETC	Pointer Network in TensorFlow (★ 100+) Implemented Learning to Discover Cross-Domain Relations with Generative Adversarial Networks (Kim et, al. 2015)	Jan 2017
	Neural Turing Machine in TensorFlow (★ 700+) Implemented Neural Turing Machine (Graves et, al. 2014) in TensorFlow	Dec 2015
	Reverse Engineering, LINE, KakaoTalk, Between, Ndrive, and Korail (★ 600+) Reverse engineered 5 commercial services including 2 mobile messengers, LINE and KakaoTalk and wrote python libraries	Aug 2014

REFERENCES

Joseph J. Lim

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