

# Taehoon Kim

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

INTERESTS	Program Induction, Reasoning, Reinforcement Learning	
EDUCATION	<b>Ulsan National Institute of Science and Technology (UNIST)</b> • 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 <sup>st</sup> out of 509 undergraduates)	Mar 2011 – Aug 2015
HONORS & AWARDS	<b>Best Paper Award</b> , International Conference on Big Data Intelligence and Computing (DataCom) 2015 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 3 <sup>rd</sup> place (\$ 8,000 as awards), Korea Whitehat Hacking Competition, 2013 1 <sup>st</sup> place (\$ 1,000 as awards), The Catholic University of Korea Hacking Competition, 2013 Finalist, Asia student Supercomputing Challenge (ASC), 2013	
SCHOLARSHIP	Academic Performance Scholarship, UNIST, 2011 – 2015 Global Scholarship for Undergraduate Research Opportunities Program (UROP), UNIST, 2015 National Science and Technology Scholarship, Korean Student Aid Foundation, 2013	
PUBLICATIONS	<p>[5] <u>T. Kim</u><sup>†</sup>, Y. Lee<sup>†</sup> and J. Lim, Teaching Machines to Understand Visual Manuals via Attention Supervision for Object Assembly, Work 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, <b>Best Paper Award</b></p>	
RESEARCH EXPERIENCE	<b>University of Southern California</b> , 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 – Present
	<b>Lawrence Berkeley National Laboratory</b> , 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
	<b>Statistical Artificial Intelligence Lab</b> , 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



	<b>BEGAN in PyTorch (★ 200+)</b> Implemented BEGAN: Boundary Equilibrium Generative Adversarial Networks (Berthelot et, al. 2017)	Apr 2017
	<b>DiscoGAN in PyTorch (★ 600+)</b> Implemented Learning to Discover Cross-Domain Relations with Generative Adversarial Networks (Kim et, al. 2017)	Mar 2017
	<b>Simulated+Unsupervised learning in TensorFlow (★ 400+)</b> Implemented Learning from Simulated and Unsupervised Images through Adversarial Training (Shrivastava et, al. 2016)	Jan 2017
	<b>Pixel Recurrent Neural Networks (★ 300+)</b> Implemented Pixel Recurrent Neural Networks (Oord et, al. 2016)	Jul 2016
	<b>Deep Visual Analogy-Making in TensorFlow (★ 200+)</b> Implemented Deep Visual Analogy-Making (Reed et, al. 2015)	Feb 2016
<b>PROGRAM INDUCTION</b>	<b>Reinforcement Learning Program Synthesis in TensorFlow</b> Implemented Leveraging Grammar and Reinforcement Learning for Neural Program Synthesis (Under review, 2017)	Dec 2017
	<b>Pointer Network in TensorFlow (★ 200+)</b> Implemented Pointer Networks (Vinyals et, al. 2015)	Jan 2017
	<b>Neural Turing Machine in TensorFlow (★ 700+)</b> Implemented Neural Turing Machine (Graves et, al. 2014) in TensorFlow	Dec 2015
<b>RL</b>	<b>Efficient Neural Architecture Search via Parameters Sharing in PyTorch (★ 200+)</b> Implemented Efficient Neural Architecture Search via Parameters Sharing (Gu et, al. 2018)	Feb 2018
	<b>Normalized Advantage Functions in TensorFlow (★ 100+)</b> Implemented Continuous Deep Q-Learning with Model-based Acceleration Learning (Pham et, al. 2016)	Jul 2016
	<b>Dueling Network in TensorFlow (★ 1.1k+)</b> Implemented Dueling Network Architectures for Deep Reinforcement Learning (Wang et, al. 2015)	Jul 2016
	<b>Deep Q-network in TensorFlow (★ 1.4k+)</b> Implemented Human-Level Control through Deep Reinforcement Learning (Vinyals et, al. 2015)	Jun 2016
	<b>Asynchronous Advantageous Actor-Critic in TensorFlow</b> Implemented Asynchronous Methods for Deep Reinforcement Learning (Mnih et, al. 2016)	Jun 2016
<b>NLP</b>	<b>Neural Variational Inference for Text Processing in TensorFlow (★ 400+)</b> 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"> <li>• Autoencoding Variational Inference For Topic Models (Srivastava et, al. 2017)</li> <li>• Neural Variational Inference For Topic Models (Srivastava et, al. 2016)</li> </ul>	May 2016
	<b>Character-Aware Neural Language Models in TensorFlow (★ 500+)</b> Implemented Character-Aware Neural Language Models (Kim et, al. 2016)	Feb 2016
	<b>End-To-End Memory Networks in TensorFlow (★ 500+)</b> Implemented End-To-End Memory Networks (Sukhbaatar et, al. 2015)	Dec 2015

## REFERENCES

### Joseph J. Lim

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### Jaesik Choi

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