

Yunseok Jang

Curriculum Vitae

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Research Interests

Understanding visual content, particularly on short videos and animated GIFs, by exploring its spatio-temporal representation and semantic meaning in a hierarchical and compositional form.

Education

- Sep. 2018 - May 2023 (expected) **University of Michigan, Ann Arbor, MI.**
- Ph.D. Student in Computer Science and Engineering, GPA: **3.7/4.0**
 - Advisor: *Prof. Honglak Lee*
- Mar. 2016 - Feb. 2018 **Seoul National University (SNU), Seoul, Korea.**
- Master of Science in Computer Science and Engineering, GPA: **4.24/4.3**
 - Advisor: *Prof. Gunhee Kim* (Vision and Learning Laboratory)
 - Thesis: *Video-based Visual Question Answering with Spatio-Temporal Reasoning Tasks (Best Thesis Award)*
 - Committee: Byoung-Tak Zhang, Gunhee Kim, U Kang
- Feb. 2007 - Aug. 2015 **Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea.**
- Cumulative Rank: **1st** out of 231 students in August 2015, GPA: **4.19/4.3**
 - Bachelor of Science in Computer Science (Major: **4.27/4.3**, Math: **4.3/4.3**)
 - Minor: IT Business Administration

Publications

Peer-Reviewed Conferences

4. Dingdong Yang, Seunghoon Hong, **Yunseok Jang**, Tianchen Zhao, Honglak Lee, *Diversity-Sensitive Conditional Generative Adversarial Networks*, International Conference on Learning Representations (**ICLR 2019**), New Orleans, Louisiana, 2019 (Acceptance = 500/1591 ~ 31.4%)
3. **Yunseok Jang**, Gunhee Kim, Yale Song, *Video Prediction with Appearance and Motion Conditions*, International Conference on Machine Learning (**ICML 2018**), Stockholm, Sweden, 2018 (Acceptance = 618/2473 ~ 25.0%)
2. Joon-Mo Park, Chul-joo Lee, **Yunseok Jang**, *Theory-driven automated content analysis of suicidal tweets : Using typicality-based classification for LDA dataset* Annual Conference of the International Communication Association (**ICA 2018**), Prague, Czech Republic, 2018 (Acceptance = 2369/4796 ~ 49.40%)
1. **Yunseok Jang**, Yale Song, Youngjae Yu, Youngjin Kim, Gunhee Kim, *TGIF-QA: Toward Spatio-Temporal Reasoning in Visual Question Answering*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR 2017**), Honolulu, USA, 2017 (**Spotlight**) (Acceptance = 215/2680 ~ 8.0%)

Professional Experience

- Mar. 2018 - Aug. 2018 **Visiting Scholar**, *University of Michigan*, Ann Arbor, MI.
- Advisor: *Prof. Honglak Lee*
 - Built a new model for long-term video prediction task while significantly reduce human supervision.
- Jun. 2017 - Nov. 2017 **Research Scientist Intern**, *Yahoo! Research*, New York, NY.
- Manager: *Yale Song*
 - Developing a *Conditional Generative Adversarial Network*-based system that can generate a short but *editable* video sequence from a single static image with appropriate motion conditions. Building new models using *TensorFlow*. Our paper related with this work is accepted in **ICML 2018**
- Sep. 2015 - Feb. 2018 **Graduate Research Assistant**, *SNU Vision and Learning Laboratory*, Seoul, Korea.
- Advisor: *Prof. Gunhee Kim*
 - Collaborator: *Yale Song* (under *Yahoo Academic Research Program*)
 - Created a new Visual Question Answering (VQA) dataset *with Animated GIFs*, focusing on repetition and transition tasks to point out the differences with image-based VQAs. Built new models, with *TensorFlow*, to present various approaches for handling video-based VQA tasks. Our paper related with this work is accepted in **CVPR 2017** as a **spotlight**.
 - Analyzed animated GIFs, an increasingly popular content in online communication, in various way to understand what it means and why people use. Submitted our paper that studied about the virality of animated GIF, with employing *Caffe* for feature extraction, *Theano* for analyzing visual contents, *TensorFlow* for building our own classifier, and Hadoop *Pig & Hive* for manipulating huge amount of data posted in *Tumblr*.
- Mar. 2015 - Jun. 2015 **Undergraduate Research Assistant**, *KAIST U&I Laboratory*, Daejeon, Korea.
- Advisor: *Prof. Alice Oh*
 - Built several models, including Low-rank Matrix Completion using Alternating Minimization based and Markov decision process based models, in Python for predicting registration behaviors of KAIST students. Implemented by analyzing last 10 years of records related to course registration. Submitted the predicted behavior about course registration to the KAIST academic team for better resource management.
- Sep. 2012 - Jul. 2014 **Software Engineer (Server-side)**, *KAKAO*, Gyeonggi-do, Korea.
- Modeled, programmed and managed Netty-based crowd-sourced link aggregation service, Underline. Implemented and adopted some recommender systems to curate contents in our service.
 - Programmed and managed iOS and server-side of mobile Q&A service, KakaoPoll.
 - Planned, managed, and operated 1st and 2nd in-office Hackathon known as 24K(24h for Krew).
- Jan. 2011 - Aug. 2012 **Software Engineer (Android and Windows)**, *ESTsoft*, Seoul, Korea.
- Created Android music player application, ALSong, that supports synchronized lyrics.
 - Programmed, ALYac Premium, a licensed version of a virus-scan application for Android. Included extra functionalities for users to manage their phones more easily.
 - Programmed and managed client part of Windows application program, like Synergy, for sharing files and clipboards between two computers that are physically separated. Improved the labor efficiency among co-workers.
- Jun. 2010 - Aug. 2010 **Software Engineer Intern (Embedded System)**, *Helsinki Metropolia University of Applied Sciences*, Espoo, Finland.
- Worked as an embedded system engineer in charge of building a new system that reduces power consumption. Changed network architecture of whole system to gain better control.
 - Managed another team working on wireless-controlled hovercraft with PSoC-microchip.

- Jul. 2009 - Dec. 2009 **Software Engineer Intern (Network System)**, KAKAO, Seoul, Korea.
- Created Netflow v9 Analyzer to analyze internet traffic flow and Traffic Limit Detector to determine the associated internet cost.
 - Applied mathematical concepts with applied algorithms to predict the estimated cost, enabling the company to improve its accuracy in predicting its internet traffic and cost.

Academic Experience

- Mar. 2017 - Jun. 2017 Grader, Computer Vision (M1522.001000), SNU
Aug. 2016 - Dec. 2016 Grader, Probabilistic Graphical Models (M1522.001300), SNU
Mar. 2016 - Jun. 2016 Teaching Assistant, Discrete Mathematics (4190.101), SNU
Aug. 2015 - Dec. 2015 Grader, Probabilistic Graphical Models (4190.773), SNU
Mar. 2015 - Jun. 2015 Teaching Assistant, Introduction to Programming (CS101), KAIST
Feb. 2013 - May 2013 Teaching Assistant, Computer Science Project (CS408), KAIST

Professional Activity

Reviewer: ICMI (2016-2018), CVPR (2019)

Scholarships and Awards

- Since Jul. 2018 Recipient of Kwanjeong Graduate Student Scholarship Program
Feb. 2018 Best Thesis Award in SNU CSE
Mar. 2016 - Feb. 2018 Recipient of KFAS Graduate Student Scholarship Program
Feb. 2016 Preparatory Association Award for the highest GPA in KAIST
Jun. 2008 - Aug. 2015 Recipient of Fulbright & General Electric Foundation Scholar Leaders Program
Jul. 2008 1st prize at 2008 Lipton Uni-Club marketing competition (Team Address)

Leadership Roles and Activities

- Dec. 2012, Mar. 2013, Organizer of Experience-Sharing Events for CS Candidates
Aug. 2018 (http://bit.ly/121208_kaistcs, http://bit.ly/130323_kaistcs, http://bit.ly/180718_snuml)
Feb. 2010 - Aug. 2015 Member of KAIST Mobile Application Development Group (Team Include)
Feb. 2007 - Jun. 2008 Member of the Undergraduate Students' Association in KAIST
Dec. 2002 - May 2005 Magician (Division: Stage and Manipulation)

Skills

Computer

Deep Learning Libraries: TensorFlow, Theano, Caffe
Database-related Systems: Apache Pig/Hive, Redis, MariaDB, MySQL
Server-Side Development (Distributed System Design, System Engineering)
Programming Languages: JAVA, Python, C/C++, Ruby (Jekyll), Scala
Mobile Application Development (iOS, Android), Applied Algorithms

Languages

Korean (Native), English (Fluent), Chinese (Basic)