Joon Sik Kim

PERSONAL INFORMATION

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RESEARCH INTEREST

- Explainable/Interpretable Machine Learning
- Human-AI Interaction
- Deep Learning for computer vision and reinforcement learning

EDUCATION

Carnegie Mellon University   Pittsburgh, PA
Doctor of Philosophy, Machine Learning (Advisor: Ameet Talwalkar)   Aug 2017 - Present

Carnegie Mellon University   Pittsburgh, PA
Master of Science, Machine Learning   Aug 2019

California Institute of Technology   Pasadena, CA
Bachelor of Science, Computer Science   June 2017

RESEARCH / WORK EXPERIENCE

Machine Learning Department, Carnegie Mellon University   Pittsburgh, PA
Graduate Research Student   Aug 2017 - present

J. P. Morgan AI Research   New York, NY
Summer Associate   May 2019 - Aug 2019

- Research on trade-offs in algorithmic fairness.

SK Inc. T-Brain   Seoul, South Korea
Machine Learning Research Intern   June 2017 - Aug 2017

- Research on elevator movement optimization using reinforcement learning

Computer Vision Lab, California Institute of Technology   Pasadena, CA
Undergraduate Research Student for Prof. Pietro Perona   July 2016 - Dec 2016

- Detection of possible planting sites for trees in the Los Angeles (Pasadena) area using data from Google Maps (street view images, panorama, aerial view, and map information).

California Institute of Technology   Pasadena, CA
Undergraduate Research Student for Prof. Yisong Yue   June 2015 - June 2016

- Introduced a latent factor model that can discover interpretable, rotation invariant 3-D representation of poses that can characterize the manifold of primitive human motions, or movemes.

California Institute of Technology   Pasadena, CA
Undergraduate Research Student for Dr. Vasumathi Raman   July 2014 - Nov 2014

- Improved the invariant refinement process in linear temporal logic (LTL) planning by eliminating states that produce any path that makes the specification unrealizable in any horizon.

Criminal Investigation Command, Ministry of National Defense   Seoul, South Korea
Soldier / Software Developer / Interpreter   Oct 2012 – July 2014

- Developed the Online Patrol System used for daily tasks, which crawls real-time news articles and forum posts based on keywords, and analyzes the trend over time.

Laser Interferometer Graviational Wave Observatory (LIGO)   Pasadena, CA
Undergraduate Research Student for Dr. Parameswaran Ajith   Jan 2012 - Aug 2012

- Developed a model-independent test of General Relativity using gravitational-wave (GW) observations from compact binary coalescence (CBC).

PUBLICATIONS[1]

3. David I. Inouye, Leqi Liu, **Joon Sik Kim**, Bryon Aragam, Pradeep Ravikumar. *Diagnostic Curves for Black Box Models.* Neural Information Processing Systems (NeurIPS) Workshop on Safety and Robustness, 2019

2. Chih-Kuan Yeh*, **Joon Sik Kim***, Ian E.H. Yen, Pradeep Ravikumar. *Representer Point Selection for Explaining Deep Neural Networks.* Advances in Neural Information Processing Systems (NeurIPS), 2018.

1. Matteo Ruggero Ronchi, **Joon Sik Kim**, Yisong Yue. *A Rotation Invariant Latent Factor Model for Moveme Discovery from Static Poses.* IEEE International Conference on Data Mining (ICDM), 2016.

Fellowships, Honors, and Awards

Kwanjeong Foundation Graduate Research Fellowship (South Korea)	2017 - Present
Bhansali Prize in Computer Science at Caltech	2017
Caltech CMS Celebration of Undergraduate Research Best Demo/Poster Award	2015
Caltech Summer Undergraduate Research Fellowship	2014, 2015, 2016
Caltech Physics 11 Summer Undergraduate Research Fellowship	2012

Teaching

10-737 Creative AI (Machine Learning Department, Carnegie Mellon)	Fall 2019

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[1]* indicates equal contribution