Joon Sik Kim

Last Updated: June 29, 2020

PERSONAL INFORMATION

Email: joonkim@cmu.edu
Web: http://www.cs.cmu.edu/∼joonsikk
Office: 8123 Gates Hillman Center, 5000 Forbes Avenue Pittsburgh PA 15213

RESEARCH INTEREST

- Machine learning with interpretability and fairness
- 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 — May 2020

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 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/managed the Online Patrol System used for daily tasks, crawling real-time news articles and forum posts based on keywords, analyzing trends over time.

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

- Worked on a model-independent test of General Relativity using gravitational-wave observations from compact binary coalescence.

PUBLICATIONS[1]

5. **Joon Sik Kim**, Jiahao Chen, Ameet Talwalkar. *FACT: A Diagnostic for Group Fairness Trade-offs.* International Conference on Machine Learning (ICML), 2020.
4. David I. Inouye, Leqi Liu, **Joon Sik Kim**, Bryon Aragam, Pradeep Ravikumar. *Automated Dependence Plots.* Uncertainty in Artificiail Intelligence (UAI), 2020
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.* 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

[1]* indicates equal contribution