

# Jangwon Lee

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## Education

- Jul 2018 **Ph.D.**, *Indiana University*, Bloomington, IN, USA.  
Intelligent and Interactive Systems track of Informatics  
School of Informatics, Computing, and Engineering
- Advisor: David Crandall
  - Co-advisor: Selma Šabanović
  - Minor: Computer Science
  - Thesis: *Learning Activities From Human Demonstration Videos*
- Feb 2008 **M.S.**, *Sungkyunkwan University*, Suwon, Korea.  
Masters in Electrical and Computer Engineering
- Advisor: Sukhan Lee
  - Thesis: *Automatic Evidence Selection and Collection for Robust Robotic Perception*
- Feb 2006 **B.S.**, *Sungkyunkwan University*, Suwon, Korea.  
Bachelor in Electronic and Electrical Engineering

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## Academic and Industrial Appointments

- Sep 2018 – present **Research Scientist**, *ObjectVideo Labs at Alarm.com*, Tysons, VA, USA.
- Working with Office of Naval Research (ONR) for Maritime Sensing
- Sep 2013 – Jul 2018 **Research/Teaching Assistant**, *Indiana University*, Bloomington, IN, USA.
- School of Informatics, Computing, and Engineering
- Jun 2016 – Aug 2016 **Research Intern**, *NASA Jet Propulsion Laboratory*, Pasadena, CA, USA.
- Mentor: Brandon Rothrock
- Feb 2008 – Jul 2013 **Software Engineer**, *Samsung*, Suwon, Korea.
- Samsung Electronics, Apr 2010 - Jul 2013
  - Samsung Digital Imaging, Feb 2009 - Apr 2010
  - Samsung Techwin, Feb 2008 - Feb 2009
- Mar 2006 – Feb 2008 **Research Assistant**, *Sungkyunkwan University*, Suwon, Korea.
- Intelligent System Research Center

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## Teaching Experience

- Aug 2013 – Dec 2016 **Associate Instructor**, *Indiana University*, Bloomington, IN, USA.
- Fall 2016:
    - INFO I590/CS B659: *Vision for Intelligent Robotics* with Prof. Michael S. Ryoo
  - Fall 2015:
    - INFO I427: *Search Informatics* with Prof. David Crandall, **Lead Associate Instructor**
  - Fall 2014:
    - INFO I427: *Search Informatics* with Prof. David Crandall
  - Spring 2014:
    - INFO I201: *Mathematical Foundations of Informatics* with John Duncan and Saúl Blanco
  - Fall 2013:
    - INFO I427: *Search Informatics* with Prof. David Crandall

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## Publications

### Peer-reviewed conference papers:

- 2019 **Jangwon Lee**, Bardia Doosti, Yupeng Gu, David Cartledge, David J. Crandall, and Christopher Raphael. Observing pianist accuracy and form with computer vision. In *IEEE Winter Conference on Applications of Computer Vision (WACV)*, Jan 2019.
- 2017 **Jangwon Lee** and Michael S. Ryoo. Learning robot activities from first-person human videos using convolutional future regression. In *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Sep 2017.
- Chenyou Fan, **Jangwon Lee**, Mingze Xu, Krishna Kumar Singh, Yong Jae Lee, David J. Crandall, and Michael S. Ryoo. Identifying first-person camera wearers in third-person videos. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, Jul 2017. (Poster, 29.0 % acceptance rate).
- Jangwon Lee**, Jingya Wang, David Crandall, Selma Šabanović, and Geoffrey Fox. Real-time, cloud-based object detection for unmanned aerial vehicles. In *IEEE International Conference on Robotic Computing (IRC)*, Apr 2017.
- 2009 Hyunjun Kim, **Jangwon Lee**, and Sukhan Lee. Environment adaptive 3d object recognition and pose estimation by cognitive perception engine. In *IEEE International Symposium on Computational Intelligence in Robotics and Automation (CIRA)*, Dec 2009.
- 2007 **Jangwon Lee**, Dongwook Shin, HunSue Lee, and Sukhan Lee. Study on behavioral personality of a service robot to make more convenient to customer. In *IEEE International Symposium on Robot and Human interactive Communication (RO-MAN)*, Aug 2007.
- Seung-Min Baek, **Jangwon Lee**, Hunsue Lee, Dongwook Shin, and Sukhan Lee. Information integration and mission selection to accomplish dependable perception for service robot. In *IEEE International Conference on Advanced Robotics (ICAR)*, Aug 2007.
- Hunsue Lee, **Jangwon Lee**, Jaewoong Lim, and Sukhan Lee. Security service robot in ubiquitous environment based on cognitive robotic engine. In *International Conference of Ubiquitous Information Technology and Applications (ICUT)*, Feb 2007.
- 2006 Dongwook Shin, **Jangwon Lee**, Hun-Sue Lee, Sukhan Lee, Young-Jo Cho, and Su-Young Chi. Robot personality from perceptual behavior engine: An experimental study. In *International Conference on Ubiquitous Robots and AmbientIntelligence (URAI)*, Oct 2006.

### Peer-reviewed workshop papers:

- 2018 Chenyou Fan, **Jangwon Lee**, and Michael S Ryoo. Forecasting hand and object locations in future frames. In *European Conference on Computer Vision (ECCV) Workshop on Anticipating Human Behavior*, Sep 2018.

### Extended abstracts in conferences and workshops:

- 2018 Haodan Tan, **Jangwon Lee**, and Gege Gao. Human-drone interaction: Drone delivery & services for social events. In *ACM SIGCHI Conference on Designing Interactive Systems (DIS), Works-in-Progress*, Jun 2018.
- Jangwon Lee**, Haodan Tan, David Crandall, and Selma Šabanović. Forecasting hand gestures for human-drone interaction. In *ACM/IEEE International Conference on Human-Robot Interaction (HRI), Late-Breaking Reports*, Mar 2018.
- 2017 **Jangwon Lee** and Michael S. Ryoo. Learning robot activities from first-person human videos using convolutional future regression. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR) Workshops on Deep Learning for Robotic Vision (DLRV)*, Jul 2017. (Spotlight Presentation). **Best paper award!**

**Jangwon Lee** and Michael S. Ryoo. Learning robot activities from first-person human videos using convolutional future regression. In *IEEE International Conference on Robotics and Automation (ICRA), Late-Breaking Results*, May 2017.

**Books chapters:**

2007 Sukhan Lee, Seung-Min Baek, and **Jangwon Lee**. Cognitive robotic engine: Behavioral perception architecture for human-robot interaction. In *Human Robot Interaction, Chapter 13. Nilanjan Sarkar (Ed.), ISBN: 978-3-902613-13-4, InTech*, 2007.

**Others:**

2017 **Jangwon Lee**. A survey of robot learning from demonstrations for human-robot collaboration. In *arXiv preprint:1710.08789*, Oct 2017.

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**Patents and Patent Filings**

- 2013 Sungwook Lee and **Jangwon Lee**. Method and apparatus for photographing an image in a user device, 2013. US Patent 9,596,412.
- 2012 **Jangwon Lee**. Digital photographing apparatus, method of controlling the same, and recording medium having recorded thereon program for executing the method, 2012. US Patent 8,872,959.
- Eunyoung Kim and **Jangwon Lee**. Method and apparatus for capturing moving picture, 2012. US Patent App. 20120176505A1.
- 2011 **Jangwon Lee**. Apparatus and method for image processing using security function, 2011. US Patent 8,482,633.
- Eunyoung Kim and **Jangwon Lee**. Apparatus for processing digital image and thereof method, 2011. Korea Patent Publication Number: 10-2011-0087595.
- 2010 **Jangwon Lee**. Photographing control method and apparatus using stroboscope, 2010. Korea Patent Publication Number: 10-2010-0077715.
- Jangwon Lee**. Digital image signal processing method, medium for recording the method, and digital image signal processing apparatus, 2010. US Patent 9,426,359.
- Jangwon Lee**. Digital camera supporting intelligent self-timer mode and method of controlling the same, 2010. US Patent 8,711,232.
- 2009 Sukhan Lee, Seung-Min Baek, Jaihun Lee, and **Jangwon Lee**. System and method for real-time object recognition and pose estimation using in-situ monitoring, 2009. US Patent 8,503,760.

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**Awards and Scholarships**

- 2017 Best Paper Award, CVPR Workshop on Deep Learning for Robotic Vision, 2017
- 2017 Travel Grant, CVPR Workshop Deep Learning for Robotic Vision, 2017
- 2013 Fellowship, four years of tuition and stipend, Indiana University, USA
- 2006 Brain Korea 21 Scholarship, Sungkyunkwan University, Korea

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**Service**

**Journal manuscript review**

IEEE Robotics and Automation Letters (RA-L)  
ACM Transactions on Human-Robot Interaction (THRI)

**Conference and workshop paper review**

IEEE International Conference on Intelligent Robots and Systems (IROS 2017, 2019)  
ACM/IEEE International Conference on Human-Robot Interaction (HRI 2018)

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## Languages

Korean Native  
English Professional working proficiency

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## Computer skills

Languages C/C++, Python, MATLAB, Perl and Ruby  
Operating Systems Linux, Windows, Real-Time OS (VxWorks, uC/OS) and ROS (Robot Operating System)  
Software Tools Unix GNU suit, Trace32, MS Visual Studio, OpenCV, ClearCase, Git and others  
Deep Learning Tools TensorFlow and Caffe  
Type Setting L<sup>A</sup>T<sub>E</sub>X, Open Office and Microsoft Office