

DAEHYUNG PARK

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SUMMARY OF QUALIFICATIONS

4 years of extensive research experience in the industrial robot field from transfer robots to assembly robots
6+ years of extensive research experience in the academic robot field from mobile robots to humanoid robots
Experience: C, C++, and Python programming, ROS, Linux
Multilingual: Korean (native), Japanese (semi native), and English (fluency)

EDUCATION

- Georgia Institute of Technology**, Atlanta, Georgia 08/2012-Present
- Doctoral student in the Robotics Ph.D. Program in the College of Computing
- University of Southern California**, Los Angeles, California 09/2006-05/2008
- Master of Science in Computer Science, Concentration in Computer Science Intelligent Robotics (CSIR)
 - Research: “Movement reproduction and obstacle avoidance with dynamic movement primitives and potential fields”
- Osaka University**, Osaka, Japan 04/2002-03/2006
- Bachelor of Engineering in Systems Science, Concentration in Systems Science and Applied Informatics
 - Thesis Research: “Dynamic Turning Control of Humanoid Robot HRP-2”

EXPERIENCE

- Graduate Research Assistant**, Georgia Tech, Atlanta, Georgia 08/2012-Present
- Working for Dr. Charlie Kemp in the Healthcare Robotics Laboratory (HRL)
 - Researching multimodal execution monitoring methods for robotic task executions
 - Researching data-driven learning and planning for reaching in clutter with whole-arm tactile sensing
- Robot Engineer**, Samsung Electronics, Suwon, Republic of Korea 08/2008-07/2012
- Developed Samsung Robot Controller (SRC); motion planning, servo control, and user applications
 - Representative Projects:
 - Easy-teaching apparatus and algorithm development 2011-2012
 - Motion-based gain tuning project 2011
 - 6-DoF transfer robot development for Gen.8 LCD glass handling 2010-2011
 - 7-DoF dual manipulation system research for an automatic assembly system 2008-2010
- Graduate Research Assistant**, University of Southern California, Los Angeles, California 01/2007-05/2008
- Worked for Dr. Stefan Schaal in the Computational Learning & Motor Control Laboratory (CLMC Lab)
 - Researched dynamic movement primitives with obstacle avoidance
 - Developed 3-DoF manipulation for a DSC System (Joint-Project with JPL)
- Research Assistant**, Osaka University, Osaka, Japan 04/2006-06/2006
- Assisted Dr. Minoru Asada and Koh Hosoda in the Asada & Hosoda Laboratory
 - Researched a linear control system of pneumatic muscles for a humanoid robot
 - Conducted research on a mini soccer robot for “Eco-Be! League,” a 2006 Robocup league in Japan
- Research Assistant**, Osaka University, Osaka, Japan 04/2005-03/2006
- Worked at the Arai Laboratory under Dr. Tatsuo Arai
 - Researched dynamic turning control on humanoid robot HRP-2 (undergraduate thesis)
- Research Assistant**, Osaka University, Osaka, Japan 04/2004-10/2004
- Conducted a problem-based learning course (PBL) in the Ushio Laboratory
 - Designed a line-tracing mobile robot

TEACHING EXPERIENCE

- Graduate Teaching Assistant (CS8803: Deep Learning)**, Georgia Tech, Atlanta, Georgia Spring 2015, Spring 2016
- Collaborated with a visiting faculty member on developing course materials and assignments, teaching labs, and grading assignments for 50 students. This course is a new course that we developed.
- Graduate Teaching Assistant (CSCI545: Robotics)**, Univ. of Southern California, Los Angeles, California 01/2008-05/2008
- Collaborated with a faculty member on teaching labs and grading assignments and exams for 50 students

SKILLS

Robot Tech: Experience: Installation of industrial robots in various factories
Techniques: Vision, Servo Tuning, and Use of diverse sensor devices

Software: Operation System - Linux, OSX, Windows; Program Language - C, C++, Python, Java
Tool - ROS, Torch, Visual C++, Visual Studio .Net, MATLAB, Git, CVS, Clear Case

Hardware: MPU - 8051, PIC, H8; Motor Control - Servo & Step motor

PUBLICATIONS

Journal Papers:

- [1] **D. Park**, H. Kim, and C. Kemp. "Multimodal Anomaly Detection for Assistive Robots," *Autonomous Robots*. [submitted]

Selected Conference Papers:

- [1] **D. Park**, H. Kim, Y. Hoshi, Z. Erickson, A. Kapusta, and C. Kemp. "Multimodal Execution Monitoring for Robot-Assisted Feeding," *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS2017)*. [submitted]
- [2] **D. Park**, Z. Erickson, T. Bhattacharjee, and C. Kemp. "Multimodal Execution Monitoring for Anomaly Detection During Robot Manipulation," *IEEE International Conference on Robotics and Automation, 2016 (ICRA2016)*.
- [3] T. Bhattacharjee, A. A. Sheno, **D. Park**, J. Rehg, and C. Kemp. "Combining Tactile Sensing and Vision for Rapid Haptic Mapping," *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS2015)*.
- [4] A. Kapusta, **D. Park**, and C. Kemp, "Task-Centric Selection of Robot and Environment Initial Configurations to Perform Assistive Tasks," *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS2015)*.
- [5] **D. Park**, A. Kapusta, J. Hawke, and C. Kemp. "Interleaving Planning and Control for Efficient Haptically-guided Reaching in Unknown Environments," *IEEE-RAS International Conference on Humanoid Robots (Humanoids 2014)*.
- [6] **D. Park**, A. Kapusta, Y. Kim, J. Rehg, and C. Kemp. "Learning to Reach into the Unknown: Selecting Initial Conditions When Reaching in Clutter," *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS2014)*.
- [7] H. Hoffmann, P. Pastor, **D. Park**, and S. Schaal. "Biologically-inspired dynamical systems for movement generation: Automatic real-time goal adaptation and obstacle avoidance," *IEEE International Conference on Robotics and Automation*, 2009.
- [8] **D. Park**, H. Hoffmann, P. Pastor, and S. Schaal. "Movement reproduction and obstacle avoidance with dynamic movement primitives and potential fields," *IEEE-RAS International Conference on Humanoid Robots*, 2008.

Selected Patents:

- [1] K. Lee, Y. Hong, C. An, and **D. Park**. "Motor control apparatus and motor control method thereof." US8614558 B2, Dec. 24, 2013.
- [2] **D. Park**, K. Lee, C. An, and Y. Hong. "Teaching and playback method based on control of redundancy resolution for robot and computer-readable medium controlling the same." US8560122 B2, Oct. 15, 2013.
- [3] K. Lee, Y. Hong, C. An, and **D. Park**. "모터 제어장치 및 모터 제어 방법(Motor Control Apparatus and Control Method the Same)," KR Patent App. 1,020,100,006,682, Aug. 2, 2011

AWARDS

IEEE Student Travel Grant, (for IROS 2014), IEEE Robotics & Automation Society 09/2014

Academic Achievement Award (for student over 3.9/4.0 GPA), University of Southern California 05/2008

Government-Sponsored Full Scholarship (+ living expense) by Japanese and Korean governments 10/2001-03.2006

ACTIVITIES

Representative, Korean Researchers in Robotics/Vision, Georgia Tech, Atlanta, Georgia 2013-2016

Lecturer, Robot Winter School on 3rd Korean Open Society for Robotics (KOS-Robot), Seoul, South Korea 12/2015

Volunteer Interpreter, Suwon Hwaseong Tourist Guide, Suwon, South Korea 08/2011-12/2011

Exhibitor, 2006 Japan Robocup, KitaKyushu, Japan 05/2006