

Daeun SONG

COMPUTER SCIENCE AND ENGINEERING · ROBOTICS

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Research Interests

Robot Path and Motion Planning, Computational Geometry

Education

EWHA WOMANS UNIVERSITY, Seoul, Korea

2017 - **Current** | M.S. and Ph.D combined in Computer Science and Engineering
• Advisor : Professor Young J. Kim

EWHA WOMANS UNIVERSITY, Seoul, Korea

2013 - 2017 | B.S. in Computer Science and Engineering

Experience

LAAS-CNRS, Toulouse, France, Student Internship

JUNE 2019 - SEPT 2019 | Gepetto Team, Summer Internship [C03]
• Worked on multi-contact planner for legged robots on uneven terrain, SL1M.
• Implemented a module that generates a set of possible contact surfaces using a guide-path result from hpp-rbprm in Python.



EWHA WOMANS UNIVERSITY, Seoul, Korea, Undergraduate Student

JAN 2016 - FEB 2017 | Computer Graphics Lab, Undergraduate Research [J01]
• Worked on rendering an astronaut model with the physics-based character animation under reduced gravity.
• Developed under Motion Builder and 3dsMax with V-ray.
MAR 2016 - DEC 2016 | “SSK, the drawing robot”, the Graduation Project [W01], [P01], [H04], [H05], [H06]
• Developed a robotic application to reproduce the user’s input drawing from a tablet PC on an arbitrary surface. Worked on the robot part.
• Implemented under Sunrise OS based on Java, using KUKA LBR IIWA 7 R800, manipulator.
• Lead the team composed of three undergraduate students.






Publications

INTERNATIONAL JOURNALS

[J02] **Daeun Song**, Pierre Fernbach, Thomas Flayols, Andrea Del Prete, Nicolas Mansard, Steve Tonneau, Young J. Kim, “Solving Footstep Planning as a Feasibility Problem using L1-normMinimization”, (Under Review)

- [J01] Yun-Hyeong Kim, Taesoo Kwon, **Daeun Song**, Young J. Kim, “Full-body Animation of Human Locomotion in Reduced Gravity using Physics-based Control”, IEEE Computer Graphics and Applications (CG&A)*, Vol. 37, No. 6, Nov/Dec 2017, pp.28-39 (Special issue on Modeling Virtual Humans).  

INTERNATIONAL CONFERENCE PAPERS

- [C04] Jason Chemin, Pierre Fernbach, **Daeun Song**, Nicolas Mansard, Steve Tonneau, “Learning to steer a locomotion contact planner”, (Under Review)
- [C03] Steve Tonneau, **Daeun Song**, Pierre Fernbach, Nicolas Mansard, Michel Taix, Andrea Del Prete, “SL1M: Sparse L1-norm Minimization for contact planning on uneventerrain”, IEEE International Conference on Robotics and Automation (ICRA), Jun 2020. 
- [C02] **Daeun Song**, Young J. Kim, “Distortion-free Robotic Surface-drawing using Conformal Mapping”, IEEE International Conference on Robotics and Automation (ICRA), May 2019. [H09]  
- [C01] **Daeun Song**, Taekhee Lee, Young J. Kim, “Artistic Pen Drawing on an Arbitrary Surface using an Impedance-controlled Robot”, IEEE International Conference on Robotics and Automation (ICRA), May 2018. [H08]  

DOMESTIC CONFERENCE PAPERS

- [D02] **Daeun Song**, Young J. Kim, “Distortion-free Robotic Surface-drawing using Conformal Mapping (extended abstract of [C02])”, Korea Robotics Society Annual Conference (KRoC), Aug 2020.
- [D01] **Daeun Song**, Taekhee Lee, Young J. Kim, “Artistic Pen Drawing on an Arbitrary Surface using an Impedance-controlled Robot (extended abstract of [C01])”, Korea Robotics Society Annual Conference (KRoC), Jan 2018. [H07]

WORKSHOPS AND TUTORIALS

- [W02] **Daeun Song**, Young J. Kim, “Hi-fidelity Robotic Pen Drawing on a Bumpy Surface”, IEEE International Conference on Robotics and Automation (ICRA) Robots and Art Forum, May 2018.
- [W01] **Daeun Song**, Taekhee Lee, Jungmin Kim, Sungmin Sohn, Young J. Kim, “Artistic Pen Drawing on an Arbitrary Surface using an Impedance-controlled Robot”, IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) Workshop on Artistically Skilled Robots, Oct 2016.

* : SCI (Science Citation Index)-listed journals

Patents

- [P01] Young J. Kim, **Daeun Song**, Jungmin Kim, “Robotic apparatus and method for artistic pen drawing on an arbitrary surface,” Korean intellectual Property Office, 1019356400000

Technical Skills

- **Programming Languages:** C/C++, Java, Python, Matlab, Lua
- **Robotic Programming:** ROS, Sunrise Workbench for KUKA
- **Robotic Planner and Simulator:** OMPL, HPP, MoveIt!, Gazebo, V-REP
- **Robotic Hardware:** KUKA iiwa 7 R 800, Fetch mobile manipulator, Ridgeback mobile platform
- **Others:** Experienced with Gurobi, OpenCV, OpenGL, PCL

Honors & Awards

- [H10] **Solvay Korea Scholarship Award** Outstanding Academic Performance
- [H09] **RAS Travel Award** International Conference on Robotics and Automation (ICRA 2019)
- [H08] **RAS Travel Award** International Conference on Robotics and Automation (ICRA 2018)
- [H07] **Best Paper Award** The 13th Korea Robotics Society Annual Conference (KRoC 2018)
- [H05] **Participation Award** Hanium Expo Contest
- [H06] **Special Award** Capston Awards (Engineering Education Festa 2016)
- [H04] **1st Place** Ewha Engineering Capstone Design Contest
- [H03] **1st Place** Ewha Engineering Student Portfolio Contest
- [H02] **2nd Place** Ewha Power ProgrammER(E-PPER) Contest
- [H01] **Excellence Award** Excellent Tutee in Tutoring Program

Activities

ACADEMIC

- **Reviewer for 2020 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)**

TALKS & DEOMOS

- **TALK, The 5th NZ/KOREA Workshop on HDI4D** *NOV 2017*
- **DEMO, Engineering Education Festa 2016** *NOV 2016*
- **DEMO, Hanium Expo 2016** *NOV 2016*

SCHOOL ACTIVITIES

- **Graduate Student Representative of CSE department** *MAR 2020 - FEB 2021*
- **Teaching Assistant for Computer Programming Class** *MAR 2016 - JUN 2016*
- **Ewha DO Coding(EDOC), Computer Programming Club** *JAN 2016 - DEC 2016*
- **EWHA-EPITA Summer Course** *JUL 2015*
- **Student Council of College of Engineering** *MAR 2013 - FEB 2014*

OTHERS

- **Reinforcement Learning Tutorial** *JAN 2017*
- **Arduino & IoT Sensing and Wireless Communication Control Tutorial** *JAN 2016*