

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

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| <i>2017 -</i>
Current | M.S. and Ph.D combined in Computer Science and Engineering <ul style="list-style-type: none">• Advisor : Professor Young J. Kim• Graduate student representative of CSE department in 2020 |
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Ewha Womans University, Seoul, Korea

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| <i>2013 - 2017</i> | B.S. in Computer Science and Engineering |
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EXPERIENCE

LAAS-CNRS, Toulouse, France

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| <i>JUN 2019</i>
- <i>SEP 2019</i> | Gepetto Team, Summer Internship [C03] <ul style="list-style-type: none">• 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. |
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Ewha Womans University, Seoul, Korea

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| <i>JAN 2016</i>
- <i>FEB 2017</i> | Computer Graphics Lab, Undergraduate Research [J01] <ul style="list-style-type: none">• Worked on rendering an astronaut model with the physics-based character animation under reduced gravity.• Developed under Motion Builder and 3dsMax with V-ray. |
| <i>MAR 2016</i>
- <i>DEC 2016</i> | “SSK, the drawing robot”, the Graduation Project [W01], [P01], [H04, H05, H06] <ul style="list-style-type: none">• 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. |

PATENTS

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

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-norm Minimization**”, ([Under Review](#)). [Webpage](#) / [Paper](#) / [Video](#)
- [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). [Webpage](#) / [Paper](#) / [Video](#)

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 uneven terrain**”, IEEE International Conference on Robotics and Automation (ICRA), Jun 2020. [Paper](#) / [Video](#)
- [C02] **Daeun Song**, Young J. Kim, “**Distortion-free Robotic Surface-drawing using Conformal Mapping**”, IEEE International Conference on Robotics and Automation (ICRA), May 2019. [Webpage](#) / [Paper](#) / [Video](#) [[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. [Webpage](#) / [Paper](#) / [Video](#) [[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

TECHNICAL SKILLS

Programming Languages: C/C++, Python, Java, Matlab

Robotic Programming: ROS, Sunrise Workbench for KUKA

Robotic Planner and Simulator: OMPL, HPP, MoveIt!, Gazebo, V-REP

Robotic Hardware: KUKA iiwa 7 R800, Ridgeback mobile platform, Fetch mobile manipulator

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)
- [H06] **Participation Award** | Hanium Expo Contest
- [H05] **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

Talks & Demos

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

School Activities

- **Teaching Assistant** | Computer Programming Class *MAR 2016 - JUN 2016*
- **Student Club** | Ewha DO Coding(EDOC), Computer Programming Club *JAN 2016 - DEC 2016*
- **Summer School** | EWHA-EPITA Sumer School, Paris, France *NOV 2016*

Others

- **Summer School** | Participate, AI & Robotics Summer School 2020 *AUG 2020*
- **Tutorial** | Participate, Reinforcement Learning Tutorial *JAN 2017*
- **Tutorial** | Participate, Arduino & IoT Sensing and Wireless Communication Control Tutorial *JAN 2016*