Donghyuk Kim

Curriculum Vitae

Education

2014–Present **PhD in Computer Science**, *KAIST(Korea Advanced Institute of Science and Technology)*.

2012–2014 **MS in Computer Science**, *KAIST(Korea Advanced Institute of Science and Technology)*.

2010–2011 **MS in Computer Science and Engineering**, *Sogang University*, (Performed one year of studies in pursuit of MS before exiting program).

2006–2010 **BA in Computer Science and Engineering**, *Sogang University*.

Master's Thesis

Title *Cloud RRT* : Sampling Cloud based RRT**

Supervisors Associate Professor Sung-Eui Yoon & Associate Professor Sungho Jo & Emeritus ChinWan Chung

Description This thesis presents a biased sampling technique for motion planning, Cloud RRT* to achieve better convergence rate toward the optimal solution. It also discusses the dilemma between exploration-exploitation problem in the aspect of sampling-based motion planning

Publication

TRO 2019 *Super-rays and Culling Region for Real-Time Updates on Grid-based Occupancy Maps*, Youngsun Kwon, Donghyuk Kim, Inkyu An, Sung-Eui Yoon, IEEE Transactions on Robotics

IROS 2018 *Kinodynamic Comfort Trajectory Planning for Car-like Robots*, Heechan Shin, Donghyuk Kim, Sung-Eui Yoon, International Conference on Intelligent Robots and Systems

UR 2018 *Adaptive Lazy Collision Checking for Optimal Sampling-based Motion Planning*, Donghyuk Kim, Youngsun Kwon, Sung-Eui Yoon, International Conference on Ubiquitous Robots

ICRA 2018 *Dancing PRM* : Simultaneous Planning of Sampling and Optimization with Configuration Free Space Approximation*, Donghyuk Kim, Youngsun Kwon, Sung-Eui Yoon, IEEE International Conference on Robotics and Automation

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RSS 2016 Workshop — *Fully sample-based configuration free space approximation for optimal motion planning*, Donghyuk Kim, Sung-Eui Yoon, Robotics: Science and Systems Workshop Recent Advanced in Planning and Manipulation for Industrial Robots (Informal publication)

ICRA 2016 — *Super Ray based Updates for Occupancy Maps*, Youngsun Kwon, Donghyuk Kim, Sung-Eui Yoon, IEEE International Conference on Robotics and Automation

ICRA 2014 — *Cloud RRT*: Sampling cloud based RRT**, Donghyuk Kim, Junghwan Lee, Sung-Eui Yoon, IEEE International Conference on Robotics and Automation

Experience

Vocational

2011.08–2012.02 — **Software Engineering Intern**, *Zoyi Inc.*, SNS-based Adware Platform Development.

2011.04–2011.07 — **Software Engineering Intern**, *Google Korea*.

2010.06–2011.02 — **Lead Programmer**, *co-worked with ETRI*, GPU-based 3D Visual Hull Reconstruction Project.

2010.03–2010.06 — **Technical Assistance**, *Syntekabio*, GPU-based Bioinformatics Analysis Tool Development.

Extra Activites

2014.09-2014.11 — **Head TA, ACM-ICPC Daejeon Regional**.

2008-Present — **Topcoder**, *Competitive programming contest site, Handle : A.I.*

Miscellaneous

Open Source Project

Motion/Path Planning Algorithms — https://github.com/aidyk

Awards

2014 — Outstanding Master's Thesis Award in Computer Science

2012 — Hyundai Autonomous Vehicle Competition, 5th Place

2010 — NVIDIA CUDA Coding Contest, Encouragement Prize

2010 — ACM-ICPC Seoul Regional 14th Place

2009 — ACM-ICPC Seoul Regional 20th Place

Patents and Patent Applications

2016 — Sung-eui Yoon; Donghyuk Kim; Jungwhan Lee; "MOTION PLANNING APPARATUS AND METHOD", K.R. Patent No.10-1688302-0000

2016 Sung-eui Yoon; Youngsun Kwon; Donghyuk Kim; "METHOD AND SYSTEM FOR UPDATING OCCUPANCY MAP BASED ON SUPER RAY", K.R. Patent Application No.10-2016-0174452

Computer skills

Intermediate Python, C++, MongoDB, flask

Advanced C, Motion Planning Algorithm