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Biological Actuation, Sensing, and Transport laboratory
Department of Mechanical Engineering & Mechanics
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EDUCATION

Drexel University, Philadelphia, United State (September 2008 ~ present)

- Advisor: Min Jun Kim

Korea University, Seoul, Korea (September 2005 ~ August 2007)

- *Master of Engineering* (Mechanical Engineering), August 2007
- Advisor: Prof. Woojin Chung
- Thesis: Path Planning of a Car-Like Vehicle for Parking Control using the Motion Space Approach.
- GPA: 4.44/4.5

Korea University, Seoul, Korea (March 1999 ~ February 2005)

- *Bachelor of Engineering* (Mechanical Engineering), August 2005
- Advisor: Prof. Jaebok Song
- GPA: 3.72/4.5

PUBLICATIONS

Journal Papers

1. Dal Hyung Kim, E.B. Steager, U.K. Cheang, D.Y. Byun, Min Jun Kim, "A comparison of vision-based tracking schemes for control of microbiorobots," *J. Micromech. Microeng.*, accepted, 2010.
2. M.S. Sakar, E.B. Steager, Dal Hyung Kim, A.A. Julius, Min Jun Kim, V. Kumar, G. Pappas, "Modeling, control and experimental characterization of microbiorobots," *Inter. J. Robotics Res.*, submitted (Invited paper), 2010.
3. M.S. Sakar, E.B. Steager, Dal Hyung Kim, Min Jun Kim, G.J. Pappas, V. Kumar, "Single cell manipulation using ferromagnetic composite microtransporters," *Applied Physics Letters*, Vol. 96, p043705-1-3, 2010. * This paper has been selected for the Feb. 22, 2010 issue of *Virtual Journal of Nanoscale Science & Technology*. You can access the Virtual Journal at <http://scitation.aip.org/nano/>.
4. Dal Hyung Kim, D. Casale, L. Kohidai, Min Jun Kim, "Galvanotactic and Phototactic Control of *Tetrahymena Pyriformis* as a Microfluidic Workhorse," *Applied Physics Letters*, Vol. 94, p163901-1-3, 2009. * This paper has been selected for the May 1, 2009 issue of *Virtual Journal of Biological Physics Research*. You can access the Virtual Journal at <http://www.vjbio.org>.
5. Dalhyung Kim, Woojin Chung, Shinsuk Park, "Practical Motion Planning for Car-Parking Control in Narrow Environment" *IET Control Theory & Applications*, accepted, 2009
6. Dalhyung Kim and Woojin Chung, "Motion planning of the car-like vehicle in the parking space by the motion space" *The Journal of Korea robotics Society*, Vol.3 No.1 pages 1—8, Mar. 2008(In Korean).

Proceedings and Conference Papers

1. Dal Hyung Kim, E.B. Steager, Min Jun Kim, "Comparison of contour based and feature based tracking methods

- for control of microbiorobotics," 2009 ASME IMECE, Lake Buena Vista, FL, IMECE2009-10564, 2009.
2. E.B. Steager, M.S. Sakar, Dal Hyung Kim, V. Kumar, G.J. Pappas, Min Jun Kim, "Hybrid control and transport using bacteria-driven microbiorobots," 2009 ASME IMECE, Lake Buena Vista, FL, IMECE2009-11327, 2009.
 3. E. Steager, Dal Hyung Kim, Min Jun Kim, "Control of a microstructure powered by bacteria using electric fields," The US-Korea Conference on Science, Technology, and Entrepreneurship, NST-3.2, Raleigh, NC, U.S.A., 2009
 4. Dalhyung Kim, Kwanghyun Yoo, Woojin Chung, Hyo-Whan Chang, Chikwan Choi and Paljoo Yoon, "The efficient path planning for car-parking using the slice projection method and comparison with the RRT method" The 3rd Korea robot conference, pages 520--521, Changwon, Jun 2008.
 5. Dalhyung Kim and Woojin Chung, "Motion planning for Car-Parking Using the Slice Projection Technique" 2008 IEEE/RSJ International Conference on Intelligent Robots and Systems, pages 1050--1055, Nice, France, Sept, 22-26, 2008.
 6. Dalhyung Kim, Woojin Chung, "Car-parking Motion Planning by the Motion Space Approach", Proceedings of 13th International Conference on Advanced Robotics (ICAR), pages 241-246, Jeju, Korea, 2007, Oral Presentation by Dalhyung Kim, 2007
 7. Dalhyung Kim, Woojin Chung, "Motion Planning of the Car-like Vehicle in the Parking Space by the Motion Space", Proceedings of 2nd Korea robot conference, pages 551-558, PyeongChang, Korea, June, 2007. (In Korean)
 8. Kooktae Lee, Dalhyung Kim, Woojin Chung, Hyohwan Chang, Paljoo Yoon, "Car Parking control using a trajectory tracking controller", Proceedings of SICE-ICCAS 2006, pages 2058-2063, Busan, Korea, Oct 2006.
 9. Dalhyung Kim, Woojin Chung, Kooktae Lee, "Collision-free Path Planning for a Car Parking Problem", Proceedings of the 3rd International Conference on Ubiquitous Robots and Ambient Intelligence (URAI 2006), pages 321-326, Seoul, Korea, Oct. 2006.
 10. Dalhyung Kim, Kooktae Lee, Woojin Chung, Hyo Whan Chang, PalJoo Yoon "Parking control of a RC car by using a trajectory tracking controller" Proceedings of 1st Korea robot conference, pages 448-455, Jeju, Korea, June 2006. (In Korean), Poster Presentation by Dalhyung Kim, 2006

EXPERIENCE

Research Assistant, *Biological Actuation, Sensing, & Transport laboratory at Drexel University, Philadelphia, United States,*

Sep. 2008 - present

- advisor: Prof. Minjun Kim
- Research subject: Microbots for Microassembling and Micromanipulation.-

Researcher, *Intelligent system and Robotics Laboratory at Korea University, Seoul, Korea,*

Sep. 2007 - Aug.2008

Research Assistant, *Intelligent system and Robotics Laboratory at Korea University, Seoul, Korea,*

Sep. 2005 - Aug. 2007

- advisor: Prof. Woojin Chung
- Research subject: Control of car-parking motion under nonholonomic constraints.
- Developed a car-parking path planning algorithm.
- Developed tracking control algorithm of a car-like vehicle.

Teaching Assistant, *Department of Mechanical Engineering at Korea University, Seoul, Korea,* Sep. 2005 - Aug. 2007

- T.A. for Microprocessor Programming 2nd semester, 2006
- T.A. for the Introduction to Electrical Engineering, 1st semester, 2006

Military Service Aug. 2001 – Oct. 2003

- Radar Operator and Senior KATUSA (Korean Augmentation to the United States Army) in Military Intelligent Unit.

HONORS

- Excellent Paper Award from 07' Korea Robot Conference by Korea Robotics Society, Aug. 2007
- The Second Stage of BK21(Brain Korea) Scholarship, 1st semester, 2007
- Research Assistants Scholarships, 2nd semester, 2006
- Best Honors Scholarship (4.5/4.5), 1st Semester, 2005
- Research Scholarship, 1st Semester, 2005
- Semester High Honors, 1st Semester, 2005, 2nd Semester, 2004
- Army Achievement Medal (AAM) from the Department of the Army for the outstanding performance in conducting MI Gunnery training, Feb. 2002

SKILLS

- Programming experience in C/C++ / VisualC++ and Visual Basic
- Analysis experience in MATLAB, SIMULINK, CarSim and LABVIEW
- Programming experience with micro-processor, ATmega128 (ATMEL Co.) and ARM7TDMI
- Designed with AutoCAD and SOLIDWORKS