



- Office hour in Fall 2022
M,W,F : 11 am – 12:30 pm Tue : 2 pm – 3 pm

- Areas of Interests
Robotics
Autonomous navigation
Motion control
Microrobots
Collaboration Robot (COBOT)

- Education
Ph.D. Mechanical Engineering, Drexel University, 2016
M.S. Mechanical Engineering, Korea University, 2010
B.S. Mechanical Engineering, Korea University, 2008

- Selected Publication
10. X. Zhang, H. Kim, M.J. Kim, “Design, implementation and analysis of a 3D magnetic tweezer system with high magnetic field gradient,” IEEE Trans. Instrum, Meas., Vol.68, No.3, p. 680-687, 2019 (SCIE)

- 9. H.Kim, U.K. Cheang, L. W. Rogowski, and M.J. Kim, “Motion Planning of Particle Based Microrobots for Static Obstacle Avoidance,” J. Micro-Bio Robot., Vol. 14, No. 1-2, p. 41-49, 2018

- 8. H.Kim, U K. Cheang, and M.J. Kim, “Autonomous Dynamic Obstacle Avoidance for Bacteria-Powered Microrobots (BPMs) with Modified Vector Field Histogram,” PloS one 12(10). 2017 (SCIE)

7. U K. Cheang, F. Meshkati, H. Kim, K. Lee, H. C. Fu, and M.J. Kim, "Versatile microrobotics using simple modular subunits," *Scientific Reports* 6, 2016, 30472 (SCI)
6. H. Kim, J. Ali, U K. Cheang, and M.J. Kim, "Micro manipulation using magnetic microrobots," *J. Bionic Eng.*, 2016. (SCIE)
5. H. Kim, U K. Cheang, D.H. Kim, and M.J. Kim, "Hydrodynamics of self-actuated bacteria carpet near boundary using microscale particle image velocimetry," *Biomicrofluidics*, 2015, 9, p. 024121 (SCI)
4. H. Kim, M.J. Kim, "Electric Field Control of Bacteria-Powered Microrobots (BPMs) Using Static Obstacle Avoidance Algorithm," *IEEE Trans. Rob.*, DOI (identifier) 10.1109/TRO.2015.2504370 (SCI)
3. H. Kim, J. Ali, K. Phuyal, S. Park, M.J. Kim, "Investigation of bacterial chemotaxis using a simple three-point microfluidic system," *BioChip Journal*, 2015, 9(1), 50-58. (SCIE)
2. W. Chung, H. Kim, Y. Yoo, C.B. Moon, J. Park, "The detection and following of human legs through inductive approaches for a mobile robot with a single laser range finder," *IEEE Trans. Ind. Electron.*, 2012, 59(8), 3156-3166. (SCI)
1. W. Chung, S. Kim, M. Choi, J. Choi, H. Kim, C.B. Moon, J.B. Song, "Safe navigation of a mobile robot considering visibility of environment," *IEEE Trans. Ind. Electron.*, 2009, 56(10), 3941-3950. (SCI)

- Phone number
410-617-2853 (x2853)

- Area of Specialty
Control and Path planning for robots
Mechatronics
System integration