

# Hyunchang Kang

Ph. D. Candidate

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## EDUCATION

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Mar. 2021 ~ Present	<b>Sungkyunkwan University</b> Department of Mechanical Engineering  <i>Advisor: Hyouk Ryeol Choi</i>  <i>Ph.D. Student</i> GPA: 4.35 / 4.5	Suwon, Korea
Mar. 2015 ~ Feb. 2021	<b>Hansung University</b> Department of Mechanical System Engineering  Thesis: Multi-legged Walking Robot Using Complex Linkage Structure  <i>B.S. in Mechanical System Engineering</i> GPA: 4.0 / 4.5	Seoul, Korea

## RESEARCH INTERESTS

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- Sensor fusion
- Mobile robots path planning
- Human–robot interaction

## PUBLICATIONS (SCIE/ESCI)

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1. Seung Jae Moon, Hongsik Yim, **Hyunchang Kang**, Jae Yoon Shim, Dawoon Jung, and Hyouk Ryeol Choi\*, "Safety-Critical Reactive Motion using Constrained Variable Admittance Control with Dual-Type Proximity Sensors", *IEEE Robotics and Automation Letters*, vol. 10, no. 9, pp. 8890-8897, September 2025.
2. **Hyunchang Kang**, Hongsik Yim, Hyukjae Sung, Hyouk Ryeol Choi\*, "Adaptive Measurement Model-Based Fusion of Capacitive Proximity Sensor and LiDAR for Improved Mobile Robot Perception", *IEEE Robotics and Automation Letters*, vol. 10, no. 1, pp. 836-843, January 2025.
3. Hongsik Yim, **Hyunchang Kang**, Tien Dat Nguyen and Hyouk Ryeol Choi\*, "Electromagnetic Field & ToF Sensor Fusion for Advanced Perceptual Capability of Robots", *IEEE Robotics and Automation Letters*, vol. 9, no. 5, pp. 4846-4853, May 2024.
4. Hongsik Yim, **Hyunchang Kang**, Seungjae Moon, Yeeun Kim, Tien Dat Nguyen, and Hyouk Ryeol Choi\*, "Multi-functional safety sensor coupling capacitive and inductive measurement for physical human–robot interaction", *SENSORS AND ACTUATORS A: PHYSICAL*, Volume 354, May

## PUBLICATIONS (DOMESTIC)

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1. 임상현, 이동훈, 강현창, 김상현. (2021). 복합 링크기구를 이용한 다족 보행로봇. *한국기계가공학회지*, 20(11), 74-79.

## CONFERENCES

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1. **Hyunchang Kang**, Hongsik Yim, Hyukjae Sung, and Hyouk Ryeol Choi\*, "Adaptive Measurement Model-Based Fusion of Capacitive Proximity Sensor and LiDAR for Improved Mobile Robot Perception", IEEE International Conference on Robotics and Automation (ICRA), Atlanta, USA (May. 2025) - Oral
2. Hongsik Yim, **Hyunchang Kang**, Tien Dat Nguyen, and Hyouk Ryeol Choi\*, "Electromagnetic Field & ToF Sensor Fusion for Advanced Perceptual Capability of Robots", IEEE CASE 2024, Bari, Italy (Aug. 2024) - Oral
3. 임홍식, Tien Dat Nguyen, 김예은, **강현창**, 최혁렬, "A/D 변환시간 제어를 이용한 전자기장 듀얼타입 근접센서 개발", 제 16회 한국로봇종합학술대회, 2021.05.19~ 05.22, Pyeongchang, Korea (May. 2021) - Poster

## PATENTS

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1. 임홍식, **강현창**, 한성진, 이현용, 이윤행, "벤더블 센서 플랫폼", KR-Application No. 10-2024-0202353
2. 임홍식, **강현창**, 이윤행, "통합형 센서 플랫폼", KR-Application No. 10-2024-0177906
3. **강현창**, 임상현, 이동훈, 김상현, "Robot walking system adopting complex link structure", KR-Registration No. 1024697720000

## PROJECTS

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- 다양한 환경에서도 적용 가능한 Universal Mobile Robot 플랫폼 설계, 성균관대학교, Korea / Development of modeling, and autonomous driving (Mar. 2022 ~ Aug. 2023)

## EXPERIENCE

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- (Student Researcher) AIDIN ROBOTICS (Anyang, Gyeonggi-do)  
Period : Mar. 2021 ~ Present  
Task : Development of proximity sensor and mobile robot applications

## EXHIBITION

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- 2023 로보월드, 산업통상자원부 주최 / 에이дин로보틱스 로봇 근접 및 접촉 안전 커버 센서 시연 / KINTEX (11 Oct. 2023 - 14 Oct. 2023)
- 2022 로보월드, 산업통상자원부 주최 / 에이дин로보틱스 로봇 근접 및 접촉 안전 커버 센서 시연 / KINTEX (26 Oct. 2022 - 29 Oct. 2022)
- 2021 로보월드, 산업통상자원부 주최 / 에이дин로보틱스 로봇 근접 및 접촉 안전 커버 센서 시연 / KINTEX (27 Oct. 2021 - 30 Oct. 2021)