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Research Professor · Intelligent Systems & Robotics Laboratory

Department of Mechanical Engineering, Korea University

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Summary

Research interests

- Robotics, Mobile Robots, Unmanned Vehicles, Autonomous Navigation, LiDAR Sensor-based Mobile Robots
- Delivery Service Robots, Last Mile Delivery, AGVs
- Person-Following of Mobile Robots, People Tracking, People Detection, Multi-target Tracking
- Path Planning, Localization, Motion Control, Machine Learning, Deep Learning, Algorithms

Dissertation

- Title: LiDAR Sensor-based Robust Detection and Tracking for Person-Following of Autonomous Navigation Robots in Crowded Environment
- Advisor: Woojin Chung

Education

Korea University

PH.D. IN MECHANICAL ENGINEERING

- Advisor: Woojin Chung

Seoul, SOUTH KOREA

Aug. 2022

Korea University

B.E. IN ELECTRICAL ENGINEERING

Seoul, SOUTH KOREA

Feb. 2012

Experience

Research Professor

College of Engineering, Korea University

NEXT-GENERATION MACHINE DESIGN TECHNOLOGY RESEARCH CENTER

- Intelligent Systems & Robotics Laboratory, Dept. of Mechanical Engineering

Seoul, SOUTH KOREA

Sep. 2022 - Current

Research Assistant

Department of Mechanical Engineering, Korea University

INTELLIGENT SYSTEMS & ROBOTICS LABORATORY

- Advisor: Woojin Chung

Seoul, SOUTH KOREA

Mar. 2012 - Aug. 2022

Teaching Assistant

School of Mechanical Engineering, Korea University

MECH463: MICROPROCESSOR PROGRAMMING(English)

MECH386: INTRODUCTION TO ELECTRICAL ENGINEERING(English)

MECH463: MICROPROCESSOR PROGRAMMING(English)

MECH386: INTRODUCTION TO ELECTRICAL ENGINEERING(English)

MECH463: MICROPROCESSOR PROGRAMMING(English)

Seoul, SOUTH KOREA

Spring, 2015

Fall, 2014

Spring, 2014

Fall, 2013

Spring, 2013

Publication

Journal Articles

In Preparation

[J0] LiDAR Sensor-based Robust Detection and Tracking for Person-Following of Autonomous Navigation Robots in Crowded Environment

Donggeun Cha and Woojin Chung

Note: in preparation.

Published

[J2] Trajectory Planner CDT-RRT* for Car-Like Mobile Robots toward Narrow and Cluttered Environments

Hyunki Kwon, **Donggeun Cha**, Jihoon Seong, Jinwon Lee and Woojin Chung

Sensors, vol. 21, no. 14, p. 4828, 2021.

[J1] Human-Leg Detection in 3D Feature Space for a Person-Following Mobile Robot Using 2D LiDARs

Donggeun Cha and Woojin Chung

International Journal of Precision Engineering and Manufacturing (IJPEM), vol. 21, pp. 1299–1307, 2020.

International Conferences

Published

[C5] Segment Extraction for Detecting Human Legs in Two-Dimensional Range Data

Donggeun Cha and Woojin Chung

16th International Conference on Ubiquitous Robots (UR), 2019, Poster.

[C4] An Ultrasonic Beacon-Based Localization Scheme Considering Motion Uncertainty of Mobile Robots

Jiwoong Kim, Jiyong Jin, Hyunki Kwon, Hyunsuk Lee, Jihoon Seong, **Donggeun Cha**, Kooktae Lee, Chang-bae Moon and Woojin Chung

The 5th International Conference on Engineering and Applied Sciences (ICEAS), 2015.

[C3] Drivable Road Region Detection and Autonomous Navigation of a Surveillance Robot

Hyunsuk Lee, Woosik Lee, Jiwoong Kim, Jiyong Jin, Hyunki Kwon, **Donggeun Cha**, Youjin Shin, Changbae Moon and Woojin Chung

The 5th International Conference on Engineering and Applied Sciences (ICEAS), 2015.

[C2] Tracking Human Legs for an Indoor Mobile Robot with a Single Laser Range Finder

Donggeun Cha, Hyojoo Cho, Jiyong Jin, Hyunki Kwon, Jiwoong Kim, Hyunsuk Lee, Jihoon Seong, Chang-bae Moon, Hyeon Kim, Yoonchang Sung and Woojin Chung

The 5th International Conference on Engineering and Applied Sciences (ICEAS), 2015.

[C1] 3D Obstacle Detection of Indoor Mobile Robots by Floor Detection and Rejection

Donggeun Cha and Woojin Chung

Smart IT Applications Workshop, 2013.

Thesis

[T1] LiDAR Sensor-based Robust Detection and Tracking for Person-Following of Autonomous Navigation Robots in Crowded Environment

Donggeun Cha

Ph.D. Dissertation, Korea University, 2022.

Domestic Conferences

Published

[D7] 이동로봇의 사람추적을 위한 파티클 기반 확률론적 필터의 데이터 결합 기법의 구현

차동근, 정우진

정보 및 제어 학술대회 CICS'19, 2019.

[D6] 레이저거리센서를 장착한 자율주행자동차를 위한 주변 차량과 보행자에 대한 강인한 인식기술

형승호, 차동근, 정우진

제32회 제어로봇시스템학회 학술대회, 2017.

[D5] 3 차원 깊이센서를 이용한 주행장애물 검지기법에의 단일평면추출의 적용

차동근, 정우진

제10회 한국로봇종합학술대회, 2015.

[D4] 3차원 깊이 센서를 이용한 장애물 감지를 위한 바닥 특성 분석

차동근, 정우진

제29회 제어로봇시스템학회 학술대회, 2014.

[D3] 키넥트를 이용한 실내 이동로봇의 3차원 장애물 감지기법의 실험적 성능 분석

차동근, 정우진

대한기계학회 2013년도 학술대회, 2013.

[D2] 이동로봇의 충돌 회피를 위한 3차원적 장애물 인식

차동근, 정우진

제8회 한국로봇종합학술대회, 2013.

[D1] 키넥트를 이용한 이륜차동로봇의 사람 추종

차동근, 정우진

제7회 한국로봇종합학술대회, 2012.

Honors & Awards

Domestic

2010 **Award of Excellence**, The 1st Creative Challenger Program

Seoul, SOUTH KOREA