

Kyoungchul Kong

Korea Advanced Institute of Science and Technology (KAIST)

Department of Mechanical Engineering

291 Daehak-ro, Yuseong-gu

Daejeon, Korea 34141

Phone:

+82 - 42 - 350 - 3012

Email:

kckong@kaist.ac.kr

Homepage:

<http://robotics.kaist.ac.kr>

Personal

Gender: Male

Nationality: Republic of Korea

Date of Birth: September 22, 1981

Place of Birth: Republic of Korea

Education

Ph.D. University of California, Berkeley, 2009
Department of Mechanical Engineering
Dissertation Title: Mechatronic Considerations for Human Assistive and Rehabilitation Systems
Research Advisor: Professor Masayoshi Tomizuka

M.S. Sogang University, 2006
Department of Mechanical Engineering
Thesis Title: Design and Control of Exoskeletal Robots for Patients and Elderly People

B.Eng., B.S. Sogang University, 2004
Department of Mechanical Engineering (B.ENG)
Department of Physics (B.S.)
SUMMA CUM LAUDE, with Honors in the College of Engineering

Employment

Associate Professor, Korea Advanced Institute of Science and Technology (KAIST), 2019 – present

Chief Executive Officer, Angel Robotics, 2017 – present

Associate Professor, Sogang University, 2015 – 2018

Assistant Professor, Sogang University, 2011 – 2014

Postdoctoral Research Fellow, University of California, Berkeley, 2009 – 2011

Visiting Professorship

Visiting Professor, University Paris-Est Créteil (UPEC), France, 2013, 2014, 2015

Visiting Researcher, Tsukuba University, Japan, 2011

Work Experiences

Co-founder of Angel Robotics (formerly SG Robotics), 2017

Co-founder of SG Mechatronics Co., 2014

Consultant, SEDNA Engineering Co., 2009 – 2010

Programmer - SEJONG Engineering Co., 2006

Project: Design of control systems for low speed vehicle crash tests

System Engineer - CHONGMIN Science Co., 2003 – 2004

Project: Development of a chemical evaporator

Researcher - OXUS Co., 2001 – 2003

Project: Development of an oxygen concentrator

Research Intern - LG Electronics Co., 2000

Project: Development of new services and products of networked robots

Honors and Awards

Young Researcher Award, 2018

Institute of Control, Robotics and Systems

Commendation by Minister, 2017

Ministry of Commerce, Industry and Energy, Korea

Young Researcher Award, 2017

Korea Robotics Society

President's Award for the Best Innovation, 2017

Korea Invention Patent Exhibition

Core Engineer for Future Technology, 2017

The National Academy of Engineering of Korea

Best Poster Paper Award, 2017

The 8th Annual Conference of Korean Society of Medical Robotics

Best Start-up Pitch in Healthcare Robotics, 2017

International Conference on Robotics and Automation

Outstanding Service Award, 2017

Korean Society of Mechanical Engineering (KSME)

Best Paper Award, 2017

Institute of Control, Robotics and Systems Conference

Finalist (9 finalists out of 1017 applicants), 2017

UAE AI & Robotics Award for Good

Hakbo Assistive Robotic Technology (ART) Award, 2016

Korea Robotics Society

- Bronze Medal, 2016
Cybathlon 2016, Powered Exoskeleton Race
- Outstanding Academic Activity Award, 2016
Institute of Control, Robotics and Systems
- Young Researcher Award, 2016
International Federation of Automatic Control (IFAC), Mechatronics T.C.
- Best Video Demonstration Award, 2016
The Korea Robotics Society Annual Conference (KRoC)
- Promising Researcher Award, 2012
The Korean Society of Mechanical Engineering, Division of Dynamics and Controls
- Outstanding Graduate Student Instructor Award, 2009
University of California, Berkeley
- Best Student Paper Award, 2008
The IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM)
- Best Poster Finalist, 2008
The 17th International Federation of Automatic Control (IFAC) World Congress
- Best Student Paper Finalist, 2005
The IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM)
- Best Paper Award, 2005
The Division of Dynamics and Control Systems, KSME Spring Conference
- Best Poster Award, 2005
The 3rd CIR (Center of Intelligent Robot) Workshop
- Top Graduation Award, 2004
with Honors in the College of Engineering, Sogang University

Seminar Talks and Invited Lectures

- 2018 Internationale Funkausstellung (IFA), Berlin, Germany, 2018.08.31.
Invited talk in the opening plenary presentation
- SolidWorks World, USA, 2018.02.08.
Plenary session, Title: *Robotic Technologies that Enables Paraplegics to Walk Again*
- The 31st Annual Conference of The Korean Spinal Neurosurgery Society, Korea, 2017.09.16.
Invited talk, Title: *Walking Assistive Robots for Spinal Cord Injury Patients*
- The 8th Annual Conference of the Korean Society of Medical Robotics, Korea, 2017.09.02.
Invited talk, Title: *Wearable Robot Technology for Assisting the Daily Lives of Complete Paraplegics*
- The Catholic University of Korea, Uijeongbu ST. Marya's Hospital, Korea, 2017.08.07.
Seminar, Title: *State-of-the-art and Commercialization of Wearable Robots for Complete Paraplegics*

The 24th Annual Conference of the Korea Neurotraumatology Society, Korea, 2017.05.27.

Invited talk, Title: *Robotic Technology that Enables Paraplegics to Walk Again*

Design Summit Forum, Korea, 2017.04.13.

Keynote presentation, Title: *Simulation for Innovation Design*

Hanyang University, Korea, 2017.04.03.

Invited talk, Title: *Actuator Design and Control of Wearable Robots for Incomplete Paraplegic Patients*

Rehabilitation Engineering Research Institute, Korea, 2017.03.15.

Invited talk, Title: *State-of-the-art and Commercialization of Wearable Robots for Complete Paraplegics*

Healthcare Robot Validation Center, Korea, 2017.03.13.

Seminar, Title: *Mechatronic Technologies that Enable Paraplegics to Walk Again*

Dankook University, Korea, 2016.12.20.

Invited talk, Title: *Motion Control in Human Assistive Robotics*

The 4th Annual Symposium of Asan Medical Center Bio-engineering Research Center, Korea, 2016.12.02.

Invited talk, Title: *Actuator Design and Control of Wearable Robots for Incomplete Paraplegic Patients*

Daegu Gyeongbuk Institute of Science & Technology, Korea, 2016.11.25.

Seminar, Title: *Mechatronics and Control Methods Learned through Cybathlon 2016, Exoskeleton Race*

The 9th Asan Rehabilitation Symposium, Korea, 2016.11.18.

Invited talk, Title: *State-of-the-art of Wearable Rehabilitation Robots*

Severance Rehabilitation Hospital, Korea, 2016.11.02.

Invited talk, Title: *Present and Future of the Rehabilitation Robotics*

IROS Workshop on "The Mechatronics behind Force/Torque Controlled Robot Actuation: Secrets & Challenges," Korea, 2016

Invited talk, Title: *Actuation Technologies that Enable Paraplegics to Walk Again*

IROS Workshop on "Assistance and Service Robotics in a Human Environment," Korea, 2016

Invited talk, Title: *Mechatronics for Assisting Humans*

AMC Joint Workshop by T.C. on Motion Control and T.C. on Sensors and Actuators, New Zealand, 2016

Seminar, Title: *Mechanical Designs for Better Control Performance in Human-interaction Applications*

National Cancer Center, Korea 2016

Seminar, Title: *Commercialization Strategy and University-Industry Collaboration in Human Assistive Robotics*

Chungnam National University, Korea 2016

Seminar, Title: *Control Applications in Healthcare Mechatronics*

IROS Workshop on "Assistance and Service Robotics in a Human Environment," Germany, 2015

Invited talk, Title: *Actuation and Control in Robotic Assistance for Incomplete Paraplegic*

ICORR Workshop on "Wearable Robotics for Motion Assistance and Rehabilitation - RoboAssist," Singapore, 2015

Invited talk, Title: *Smart Actuation Technologies in Rehabilitation Robotics*

- Korean Spinal Neurosurgery Society Conference, Seoul, 2015
Invited talk, Title: *Actuation and Control in Robotics Assistance for Incomplete Paraplegia*
- ICRA Workshop on "Wearable robotics for motion assistance and rehabilitation," Hong Kong, 2014
Invited Talk, Title: *Control Methods and Controller Structures for Assisting Humans by Robots*
- Yeungnam University, Korea, 2014
Invited Talk, Title: *Essential Mechatronic Technologies for Co-existence of Robots and Humans*
- IROS Workshop on "Wearable robotics for motion assistance and rehabilitation," Japan, 2013
Invited Talk, Title: *Recognition of Daily-life Motions Based on a Wearable Body Sensor Network*
- IROS Workshop on "Biologically Inspired Based Strategies for Hybrid and Multi-modal Locomotion," Japan, 2013
Invited Talk, Title: *Different Approaches in the Development of Bio-inspired Locomotive Robots*
- Seoul National University, Korea, 2013
Invited Talk, Title: *Respect the Unstable: Limitation of Mechanical Control Systems*
- Gwangju Institute of Science and Technology, Korea, 2013
Invited Talk, Title: *Design and Control of Cheetaroid Robots*
- ICROS Annual Conference, Korea, 2013
Invited Talk, Title: *Respect the Unstable*
- KSME Annual Conference, Korea, 2012
New-Career Faculty Invited Talk
Title: *Design of an Actuation System for the Design of Cheetaroid*
- Myungji University, Korea, 2012
Invited Talk, Title: *Interactive Design of Algorithms and Mechanisms for Robotic Systems*
- Ajou University, Korea, 2011
Invited Lecture, Title: *Mechatronics for Assisting Humans*
- University of Tsukuba, Japan, 2010
Invited Lecture, Title: *Controls and Robotics*
- University of California, Berkeley, USA, 2009
Seminar Talk (Robotics and Embedded Systems Seminar)
Title: *Mechatronic Considerations for Human Assistive and Rehabilitation Systems*
- University of California, Los Angeles, USA, 2009
Seminar Talk, Title: *Mechatronics for Assisting Humans*
- Korea Advanced Institution of Science and Technology, Korea, 2009
Seminar Talk, Title: *Mechatronics for Assisting Humans*
- Sogang University, Korea, 2009
Research Seminar, Title: *Computer Aided Controller Design*
- NI-Week, USA, 2008
Seminar Talk (Embedded Systems Session)
Title: *Mechatronic Technologies for Assisting Humans*

NI-Week, USA, 2007

Demonstration in Keynote Presentation

US-Japan Workshop on Advanced Integrated Sensor Technologies for Safe and Secure Societies and Better Quality of Life, Japan, 2007

Seminar Talk, Title: *A Gait Monitoring System Based on Smart Shoes*

Professional Memberships and Services

Memberships

KROS (Korea Robotics Society), Member, 2011 – Present

IFAC (International Federation of Automatic Control), Member, 2007 – Present

ICROS (Institution of Control, Robotics, and Systems), Member, 2004 – Present

KSME (Korean Society of Mechanical Engineering), Member, 2004 – Present

ASME (American Society of Mechanical Engineering), Member, 2003 – Present

IEEE (Institute of Electrical and Electronics Engineers), Member, 2003 – Present

Journal Editor

Associate Editor of *IFAC Journal of Mechatronics* (published by Elsevier)

Associate Editor of *Journal of Mechanical Science and Technology* (published by Springer)

Associate Editor of *International Journal of Dynamics and Control* (published by Springer)

Associate Editor of *Journal of Institute of Control, Robotics and Systems* (domestic journal)

Associate Editor of *Magazine of Korean Robotics Society* (domestic journal)

Journal Reviewer

A number of journals including:

IEEE Transactions on Robotics

IEEE/ASME Transactions on Mechatronics

ASME Journal of Journal of Dynamic Systems, Measurement, and Control

IFAC Journal of Mechatronics

Journal of Systems and Control Engineering

Conference Referee

A number of conferences including:

IEEE International Conference on Robotics and Automation (ICRA)

IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM)

ASME Dynamic Systems and Control Conference (DSCC)

American Control Conference (ACC)

Conference Organizing Committee / Editor

NOC Chair (General Chair) of *2019 IFAC Workshop on Robot Control*

Organizing Committee of *2016, 2017 URAI Conference*

Organizing Committee of *IEEE IV2015 (Intelligent Vehicle) Symposium*

Organizing Committee of *2012, 2014 ICCAS Conference*

Organizing Committee of *2019 ICROS Conference*

Organizing Committee of *2015, 2016, 2017 KROC Conference*

Associate Editor of *2019 IEEE ICORR Conference*

Associate Editor of *2017, 2018 IEEE/RSJ IROS Conference*

Associate Editor of *2013, 2014, 2015, 2016, 2017 IEEE ICRA Conference*

Associate Editor of 2010, 2011, 2016, 2017, 2018 IEEE/ASME AIM Conference
Program Committee of 2013 ASROB (*Assistance and Service Robotics in a Human Environment*), a workshop in conjunction with the IROS 2013

Courses Taught

All the following courses are provided in the Department of Mechanical Engineering, Sogang University.

Undergraduate Courses

Dynamics

Fall 2013

Mechatronics (Changed from "Microprocessor Applications")

Spring 2011, Spring 2012, Spring 2013, Fall 2014

Linear Vibrations

Spring 2012

Digital Control Systems

Fall 2011, Fall 2012, Fall 2013, Fall 2015

Introduction to Engineering Design

Fall 2015

Mechanical Engineering Analysis

Spring 2011 (received the second highest course evaluation score in the College of Engineering)

Spring 2013 (selected as the Best Lecture of the University)

Spring 2014, Spring 2015

Graduate Courses

Linear System Control

Spring 2019

Robust Control Systems

Fall 2011, Fall 2012, Spring 2014, Fall 2016

Advanced Mechatronics

Spring 2013, Spring 2015, Fall 2016

System Identification and Practice

Fall 2014

Past and Current Research Projects

Ongoing Research Projects

Development of a Multi-Legged Robot Platform Capable of Travelling at The Maximum Speed Of 5M/S or Higher Based on a Leg Drive Module with Repetitive Force Accuracy of 3N or Less

Sponsored by Korea Evaluation Institute of Industrial Technology, 2017–2019

Role: Principal Investigator

Development of a Soft Wearable Robot for Preventing Falling Down

Sponsored by Institute for Information & Communications Technology, 2017–2020

Role: Co-Principal Investigator

Commercialization Research of a Wearable Robot for Walking Assistance of Complete Paraplegics

Sponsored by Commercializations Promotion Agency for R&D Outcomes, 2017–2018

Role: Principal Investigator

Study on Design and Control of Compliant Actuation and Mechanism for Fast Locomotion of Wearable Robot

Sponsored by Agency for Defense Development, 2017–2019

Role: Principal Investigator

Research on High-power Actuator for High-speed Robot

Sponsored by the Basic Research Program (Young Researcher Award) of National Research Foundation, 2015 – 2018

Role: Principal Investigator

Completed Research Projects

Research on a Soft Ankle Assistive Device

Sponsored by National Rehabilitation Center, 2017

Role: Principal Investigator

Development of a Soft Upper-extremity Assistive Robot

Sponsored by LIG Nexone Co., 2016–2017

Role: Principal Investigator

Development of an Assistive Robot for Incomplete Paraplegic Patients

Sponsored by National Rehabilitation Center, 2016

Role: Principal Investigator

Research on Business Model of Wearable Robot Technology for Assisting Daily Life of Patients and the Elderly with Muscular Weakness

Sponsored by Commercializations Promotion Agency for R&D Outcomes, 2016

Role: Principal Investigator

Research on the Vibration Suppression and Image Stabilizing for a High-Speed Quadruped Robot on Uneven Territory

Sponsored by Agency for Defense Development, 2014–2016

Role: Principal Investigator

Collaborative Research on Mechanical and Control Mechanisms for Realization of Human-friendly Interaction by a High-speed Series Elastic Actuator

Sponsored by National Research Foundation, 2014–2015

Role: Principal Investigator

Collaboration Research and Research Exchange for Integration of Emerging Information Technologies for Human Health Monitoring and Assistive Robotics

Sponsored by National Research Foundation, 2014–2015

Role: Principal Investigator

Research on Precise Ankle Joint Torque Estimation for Wearable Robot

Sponsored by Hyundai Motors Company, 2015–2016

Role: Principal Investigator

Analysis and Algorithmization of Environment Recognition, Locomotion, and Balancing Schemes of Quadruped Animals for a High-Speed Running Robot System

Sponsored by the Basic Research Program (Superior Young Researcher Award) of National Research Foundation, 2012–2015

Role: Principal Investigator

Feasibility Research of Sensor-less Monitoring Based on Sensor-fusion of Ground Reaction Force and Inertial Measurement Units

Sponsored by Samsung Electronics Co., 2015

Role: Principal Investigator

Feasibility Research on the Design of Optimal Series Elastic Actuators for Wearable Robotics

Sponsored by Hyundai Motors Company, 2015

Role: Principal Investigator

Development of Wearable Sensors for Robots

Sponsored by Sogang University, 2015

Role: Principal Investigator

Research Center for Maximum Mobility on Uneven Terrains

Sponsored by Sogang University, 2014–2015

Role: Director of Center

Efficiency Improvement and Optimal Design of a Magnetic Agitator and Pump

Sponsored by Korea Sanhak Foundation, 2014

Role: Principal Investigator

Development of a Control Algorithm for an Orthodontic Wire Bending Machine

Sponsored by TwoPeople Communications Company, 2014–2015

Role: Principal Investigator

Next Generation of Wearable Platform

Sponsored by LG Electronics Co., 2014

Role: Co-Principal Investigator

Wear Your STEPs

Sponsored by Samsung Electronics Co., 2014

Role: Co-Principal Investigator

Development of Precision Bending Technology of Wires with High Spring-back Phenomenon

Sponsored by Sogang University and Two People Comm., 2013 – 2014

Role: Principal Investigator

Development of a Gesture Recognition Accessory

Sponsored by LG Electronics Co., 2013–2014

Role: Principal Investigator

Development of a Smart Ankle Prosthesis and Certification Process

Sponsored by the Ministry of Trade, Industry, and Energy, 2013–2014

Role: Co-Principal Investigator

Development of Core Technology for Urban Smart Vehicles Based on Open Architecture

Sponsored by Sogang University, 2011–2013

Role: Co-Principal Investigator

Development of a Posture Measurement System and Its Applications for Mobile Devices

Sponsored by LG Electronics Co., 2011 – 2012

Role: Principal Investigator

Development of a Rehabilitation and Health Monitoring System Based on a Body Sensor Network

Sponsored by Sogang University, 2011–2012

Role: Principal Investigator

Book and Journal Publications

Book Publications

1. S. Mohammed, J. Moreno, K. KONG, and Y. Amirat, "Intelligent Assistive Robots - *Recent Advances in Assistive Robotics for Everyday Activities*," Springer, 2015 [ISBN : 978-3-319-12922-8, DOI : 10.1007/978-3-319-12922-8]

Journal Articles

1. H. Choi and K. KONG, "A Soft Three-axis Force Sensor Based on Radially Symmetric Pneumatic Chambers," *IEEE Sensors Journal*, in press.
2. H. Woo and K. KONG, "Mechanical Design Optimization of a Series Elastic Actuator Considering the Control Performance," *International Journal of Robotics Research and Application*, in press.
3. H. Choi, B. Na, J. Lee, and K. KONG, "A User Interface System with See-Through Display for WalkON Suit: A Powered Exoskeleton for Complete Paraplegics," *MDPI Applied Science*, Vol. 8, article no. 2287, 2018
4. H. Choi and K. KONG, "An Air-Filled Pad With Elastomeric Pillar Array Designed for a Force-Sensing Insole," *IEEE Sensors Journal*, Vol. 18, No. 10, pp. 3968-3976, 2018
5. W. Huo, S. Mohammed, Y. Amirat, and K. KONG, "Fast Gait Mode Detection and Assistive Torque Control of an Exoskeletal Robotic Orthosis for Walking Assistance (E-ROWA)," *IEEE Transactions on Robotics*, Vol. 34, No. 4, pp. 1035-1052, 2018
6. J. Jung and K. KONG, "Mechanical Parameter Tuning Based on Iterative Learning Mechatronics Approach," *IEEE/ASME Transactions on Mechatronics*, Vol. 23, No. 2, pp. 906-915, 2018
7. Y. Seo and K. KONG, "Vibration Suppression Control of a Head Suspension System for a Quadruped Robot," *Journal of Institute of Control, Automation, and Systems Engineering*, Vol. 24, No. 1, pp. 71-79, 2018 (Domestic Journal)
8. J. Choi, B. Na, P.G. Jung, D.W. Rha, K. KONG, "WalkON Suit: A Medalist in the Powered Exoskeleton Race of Cybathlon 2016," *IEEE Robotics and Automation Magazine*, Vol. 24, Issue 4, pp. 75-86, 2017
9. M. Lee and K. KONG, "Fourier-series-based Phase Delay Compensation of Brushless DC Motor Systems," *IEEE Transactions on Power Electronics*, Vol.33, No.1, pp.525-534, Dec. 2017
10. Y. Seo and K. KONG, "Design of a Vibration Suppression Mechanism for the Precise Surveillance by a Quadruped Robot," *Journal of Institute of Control, Automation, and Systems Engineering*, Vol. 23, No. 12, pp. 1092-1100, 2017 (Domestic Journal)
11. J. Choi and K. KONG, "Optimal Sensor Fusion and Position Control of a Low-price Self-driving Vehicle in Short-term Operation Conditions," *International Journal of Control, Automation and Systems*, Vol.15, No.6, pp.2859-2870, 2017
12. H. Woo, J. Lee and K. KONG, "Gait Assist Method by Wearable Robot for Incomplete Paraplegic Patients," *Journal of Korea Robotics Society*, Vol. 12, No. 2, pp. 144-151, 2017 (Domestic Journal)
13. J. Choi, B. Na, P.G. Jung, D.W. Rha and K. KONG, "WalkON Suit: A Wearable Robot for Complete paraplegics," *Journal of Korea Robotics Society*, Vol. 12, No. 2, pp. 116-123, 2017 (Domestic Journal)
14. S. Oh and K. KONG, "High-Precision Robust Force Control of a Series Elastic Actuator," *IEEE/ASME Transactions on Mechatronics*, Vol. 22, No. 1, pp. 71-80, 2017
15. H. Choi, S. Oh, and K. KONG, "Control of a Robotic Manipulator in the Polar Coordinate System using a Biarticular Actuation Mechanism," *International Journal of Control, Automation, and Systems*, Vol. 14, No. 4, pp 1095-1105, 2016

16. S. Mohammed, A. Samé, L. Oukhellou, K. KONG, W. Huoa, and Y. Amirat, "Recognition of Gait Cycle Phases Using Wearable Sensors," *Robotics and Autonomous Systems*, Vol. 75, Part A, pp. 50-59, 2016
17. S. Oh, S. Mohammed, and K. KONG, "Design and Control of an Active Ankle-Knee Orthosis Inspired by Biarticular Musculoskeletal Structure of the Human Lower Limb," *Robotics and Autonomous Systems*, Vol. 75, Part A, pp. 107-117, 2016
18. K. Park, J. Choi, and K. KONG, "Swing Trajectory Optimization of Legged Robot by Real-time Nonlinear Programming," *Journal of Institute of Control, Automation, and Systems Engineering*, Vol. 21, No. 12, pp. 1193-1200, 2015 (Domestic Journal)
19. M. Lee and K. KONG, "Design of Sensorless BLDC Motor Driver Using Variable Voltage and Back-EMF Differential Line," *Journal of Institute of Control, Automation, and Systems Engineering*, Vol. 21, No. 10, pp. 910-916, 2015 (Domestic Journal)
20. S. Oh, E. Baek, S.-K. Song, S. Mohammed, D. Jeon, and K. KONG, "A Generalized Control Framework of Assistive Controllers and Its Application to Lower Limb Exoskeletons," *Robotics and Autonomous Systems*, Vol. 73, pp. 68-77, 2015
21. B. Na and K. KONG, "Control Power Reduction and Frequency Bandwidth Enlargement of Robotic Legs by Nonlinear Resonance," *IEEE/ASME Transactions on Mechatronics*, Vol. 20, No. 5, pp. 2340-2349, 2015
22. S.-K. Song, H. Woo, and K. KONG, "Estimation of Tibia Angle through Time-Varying Complementary Filtering and Gait Phase Detection," *Journal of Institute of Control, Automation, and Systems Engineering*, Vol. 21, No. 10, pp. 944-950, 2015 (Domestic Journal)
23. S. Oh and K. KONG, "Two-degree-of-freedom Control of a Two-link Manipulator in the Rotating Coordinate System," *IEEE Transactions on Industrial Electronics*, Vol. 62, No. 9, pp. 5598-5607, 2015
24. M. Lee, K. Jung, and K. KONG, "Design of Unknown Disturbance and Current Observer for Electric Motor Systems," *Journal of Institute of Control, Automation, and Systems Engineering*, Vol. 21, No. 7, pp. 615-620, 2015 (Domestic Journal)
25. H. Woo and K. KONG "Controller Design for Mechanical Impedance Reduction," *IEEE/ASME Transactions on Mechatronics*, Vol. 20, No. 2, pp. 1083-4435, 2015
26. P.G. Jung, G. Lim, S. Kim, and K. KONG, "A Wearable Gesture Recognition Device for Detecting Muscular Activities Based on Air-Pressure Sensors," *IEEE Transactions on Industrial Informatics*, Vol. 11, No. 2, pp.485-494, 2015
27. B. Na, H. Choi, and K. KONG, "Design of a Direct-Driven Linear Actuator for a High-Speed Quadruped Robot, Cheetaroid-I," *IEEE/ASME Transactions on Mechatronics*, Vol. 20, No. 2, pp. 924-933, 2015
28. W. Chen, K. KONG, and M. Tomizuka, "Dual-Stage Adaptive Friction Compensation for Precise Load Side Position Tracking of Indirect Drive Mechanisms," *IEEE Transactions on Control Systems Technology*, Vol. 23, No. 1, pp. 164-175, 2015

29. S. Oh, H. Woo, and K. KONG, "Frequency-Shaped Impedance Control for Safe Human-Robot Interaction in Reference Tracking Application," *IEEE/ASME Transactions on Mechatronics*, Vol. 19, No. 6, pp. 1907-1916, 2014
30. S. Oh, K. KONG, and Y. Hori, "Operation State Observation and Condition Recognition for the Control of Power-Assisted Wheelchair," *IFAC Journal of Mechatronics*, Vol. 24, No. 8, pp. 1101-1111, 2014
31. J. Cho, H.Y. Jeong, and K. KONG, "Analysis of Dynamic Model of a Top-Loading Laundry Machine with a Hydraulic Balancer," *International Journal of Precision Engineering And Manufacturing*, Vol. 15, No. 8, pp. 1615-1623, 2014
32. S. Oh, K. KONG, and Y. Hori, "Design and Analysis of Force-sensor-less Power Assist Control," *IEEE Transactions on Industrial Electronics*, Vol. 61, No. 2, pp. 985-993, 2014
33. P.G. Jung, S. Oh, G. Lim, and K. KONG, "A Mobile Motion Capture System Based on Inertial Sensors and Smart Shoes," *ASME Journal of Dynamic Systems, Measurement and Control*, Vol. 136 / 011002, 2014
34. K. KONG and M. Tomizuka, "Real-Time Nonlinear Programming By Amplitude Modulation," *International Journal of Control, Automation and Systems*, Vol. 11, No. 4, pp. 742-751, 2013
35. K. KONG, J. Bae, and M. Tomizuka, "Torque Mode Control of a Cable-Driven Actuating System by Sensor Fusion," *ASME Journal of Dynamic Systems, Measurement, and Control*, Vol. 135 / 031003, 2013
36. K. KONG and M. Tomizuka, "Nominal Model Optimization for Improvement of Stability Robustness for Disturbance Observer-Based Control Systems," *International Journal of Control, Automation, and Systems*, Vol. 11, No. 1, pp. 12-20, 2013
37. K. KONG, "Proxy-Based Impedance Control of a Cable-Driven Assistive System," *IFAC Journal of Mechatronics*, Vol. 23, No. 1, pp. 147-153, 2013
38. K. KONG, S. Yim, S. Choi, and D. Jeon, "A Robotic Biopsy Device for Capsule Endoscopy," *ASME Journal of Medical Devices*, Vol. 6 / 031004, 2012
39. K. KONG and M. Tomizuka, "Design of a Rehabilitation Device Based on a Mechanical Link System," *ASME Journal of Mechanisms and Robotics*, Vol. 4 / 035001, 2012
40. K. KONG, J. Bae, and M. Tomizuka, "A Compact Rotary Series Elastic Actuator for Human Assistive Systems," *IEEE/ASME Transactions on Mechatronics*, Vol. 17, No. 2, pp. 288-297, 2012
41. J. Bae, K. KONG, and M. Tomizuka, "Gait Phase-Based Control for a Rotary Series Elastic Actuator Assisting the Knee Joint," *ASME Journal of Medical Devices*, Vol. 5 / 031010, 2011
42. J. Bae, K. KONG, N. Byl, and M. Tomizuka, "A Mobile Gait Monitoring System for Abnormal Gait Diagnosis and Rehabilitation: A Pilot Study for Parkinson's Disease Patients," *ASME Journal of Biomechanical Engineering*, Vol. 133 / 041005, 2011
43. K. KONG, H. C. Kniep, and M. Tomizuka, "Output Saturation in Electric Motor Systems: Identification and Controller Design," *ASME Journal of Dynamic Systems, Measurement, and Control*, Vol. 132 / 051002, 2010

44. K. KONG, H. Moon, D. Jeon, and M. Tomizuka, "Control of an Exoskeleton for Realization of Aquatic Therapy Effects," *IEEE/ASME Transactions on Mechatronics*, Vol. 15, No. 2, pp. 191-200, 2010
45. K. KONG and M. Tomizuka, "Control of Exoskeletons Inspired by Fictitious Gain in Human," *IEEE/ASME Transactions on Mechatronics*, Vol. 14, No. 6, pp. 689-698, 2009
46. K. KONG and M. Tomizuka, "A Gait Monitoring System Based on Air Pressure Sensors Embedded in a Shoe," *IEEE/ASME Transactions on Mechatronics*, Vol. 14, No. 3, pp. 358-370, 2009
47. K. KONG, H. Moon, B. Hwang, D. Jeon, and M. Tomizuka, "Impedance Compensation of SUBAR for Back-Drivable Force Mode Actuation," *IEEE Transactions on Robotics*, Vol. 25, No. 3, pp. 512-521, 2009
48. K. KONG, J. Bae, and M. Tomizuka, "Control of Rotary Series Elastic Actuator for Ideal Force Mode Actuation in Human-Robot Interaction Applications," *IEEE/ASME Transactions on Mechatronics*, Vol. 14, No. 1, pp. 105-118, 2009
49. K. KONG and D. Jeon, "Design and Control of an Exoskeleton for the Elderly and Patients," *IEEE/ASME Transactions on Mechatronics*, Vol.11, No.4, pp. 936-942, 2006
50. K. KONG and D. Jeon, "Design and Control of a Novel Tendon-Driven Exoskeletal Power Assistive Device," *Journal of Control, Automation, and Systems Engineering*, Vol.11, No.11, 2005 (Domestic Journal)
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Patents

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18. *Mechatronic System Capable Of Selectively Adjusting Mechanical Impedance And Mechanical Impedance Control Method Of Mechatronic System*, Korean Patent, Registration No.: 10-1582413
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27. *Rotational Razor For The Tissue Extraction Of Endoscopic Microcapsule, Trigger Making A Rotational Razor For The Tissue Extraction Of Endoscopic Microcapsule Start Or Cease Working, Module For The Tissue Extraction Of Endoscopic Micro Capsule, Endoscopic Microcapsule Equipped With The Module And Method For The Tissue Extraction Of Endoscopic Microcapsule*, Korean Patent, Registration No.: 10-0649543
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29. *Foot Pressure Sensor Of Exoskeletal Robot For Power Assistant*, Korean Patent, Registration No.: 10-0651639

Ph.D. Graduates

1. Dr. Jungsu Choi, 2018
Dissertation title : "..."
Current position : Assistant Professor, Department of Robotics, Yeungnam University, Korea
2. Dr. Byeonghun Na, 2018
Dissertation title : "..."
Current position : Senior Engineer, Angel Robotics, Korea
3. Dr. Hanseung Woo, 2018
Dissertation title : "..."
Current position : Post-doctoral Research Fellow, Department of Mechanical Engineering, Korea Advanced Institute of Science and Technology, Korea
4. Dr. Hyunjin Choi, 2018
Dissertation title : "..."
Current position : Senior Engineer, Angel Robotics, Korea
5. Dr. Pyeong-Gook Jeong, 2018
Dissertation title : "..."
Current position : Post-doctoral Research Fellow, Laboratory of Images, Signals and Intelligent Systems (LISSI), University Paris-Est Créteil (UPEC), France