

Curriculum Vitae

Keri Kim

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Keri Kim, Ph.D.

Principal Research Scientist

Robotics and Media Research Institute,
Korea Institute of Science and Technology

Associate Professor,
Korea University of Science and Technology (UST)

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Education

Ph. D. Mar. 2008
Department of Mechano-Informatics, Graduate School of Information Science and Technology,
The University of Tokyo, Tokyo, Japan
Study of method for change field of view safely in endoscopic surgery
(Advisor: Takeyoshi Dohi, Ph.D.)

M.S. Mar. 2005
Department of Mechano-Informatics, Graduate School of Information Science and Technology,
The University of Tokyo, Tokyo, Japan
Miniaturization of wide field of view wedge prism endoscope
(Advisor: Takeyoshi Dohi, Ph.D.)

B.S. Feb. 2001
School of Mechanical and Aerospace Engineering,
Seoul National University, Seoul, Korea
(Advisor: Jang-Moo Lee, Ph.D.)

Professional experience

Principal Research Scientist Mar. 2020 – Present
Robotics and Media Research Institute
Korea Institute of Science and Technology, Seoul, Korea

Senior Research Scientist Apr. 2012 – Feb. 2020
Biomedical Research Institute, Robotics and Media Research Institute
Korea Institute of Science and Technology, Seoul, Korea

Associate Professor Biomedical Engineering, Korea University of Science and Technology (UST)	Mar. 2015 – Present
Assistant Professor Biomedical Engineering, Korea University of Science and Technology (UST)	Apr. 2012 – Feb. 2015
Research Scientist Biomedical Research Institute, Korea Institute of Science and Technology, Seoul, Korea	Dec. 2011 – Mar. 2012
Research Resident Clinical Research Center, National Center for Child Health and Development, Tokyo, Japan (Fellowship from Japan Association for the Advancement of Medical Equipment)	Apr. 2008 – Mar. 2011
Assistant Researcher 2002 Institute of Advanced Machinery and Design, Seoul National University, Seoul, Korea	Jan. 2001 – Dec.

Memberships & Activities

Member, Education board, Korean Innovative Medical Technology Society
(대한의료기술혁신학회 교육위원회 위원)

Associate Editor, IROS 2018 and 2019 (International Conference on Intelligent Robots and Systems)

Program chair, Korean Conference for Medical Robot 2017
(2017 대한의료로봇학회 부조직위원장)

Member, Seoul bio hub Knowledge society
(서울 바이오허브 지식공동체 전문위원)

Member of board of directors, Korean Society of Precision Engineering and Manufacturing
(한국정밀공학회 로봇 제어 자동화 부문)

Member, Medical device committee, Ministry of Food and Drug Safety
(식품의약품안전처 정부 의료기기 위원회 위원활동)

Member of board of directors, KSMR (Korean Society of Medical Robotics)
(대한의료로봇학회 이사)

Committee Member, ACCAS (Asian Society of Computer Aided Surgery)

Committee Member, ICCAS (International Conference on Control, Automation and Systems)

Member, JSCAS (Japan Society of Computer Aided Surgery)

Member, JSMBE (Japan Society for Medical and Biological Engineering)

A member of the planning committee

The graduating class representative, Graduate School of Information Science and Technology

Honors & Awards

박철민, 김계리, 고관절의 활액막연골종증 수술을 위한 수동 조작형 엔드이펙터 기기,
대한의료로봇학회 최우수 논문상, 2017 년 9 월 2 일

Keri Kim, Woosub Lee, YoonJeong Kim, Dongeun Choi, Taeyoung Choi, Sangmyung Kim,
Minho Hwang, Dong-soo Kwon, Sunho Kim, Sungchul Kang, A steerable
endoscopic robot for endonasal skull base surgery: development and a cadaver
experiment, Int J CARS (2015) S71-72, CARS 2015, ISCAS/ Olympus Best Paper
Award

김계리, 강성철, 이우섭, 김진석, 뇌, 척추 등 미세한 수술이 가능한 차세대 수술 로봇
개발, 국가연구개발 우수성과 100 선, 미래창조과학부, 2015 년 10 월 15 일

김계리, 강성철, 이우섭, 미세수술로봇, 대한민국 10 대 과학기술 뉴스 선정, 2014 년
12 월

Daeyoung Lee, Kyujin Cho, Keri Kim, Sungchul Kang et al. Design of grooved tubes with
anisotropy to solve the snapping problem, The Grand Prize 2013, Korean Society
for Precision Engineering, May, 2014

Keri Kim: Light-saving fetoscope using ultrasensitive HARP camera, The 5th Asian Conference
on Computer Aided Surgery (ACCAS 2009), TERUMO Young Investigator Award,
July 3, 2009

Keri Kim: FOV-changeable endoscope using a beam splitter. JSCAS 2006, Young Investigator
Award, Nov. 2007

Hiroki Kamiuchi, Keri Kim, Hiromasa Yamashita, Ken Masamune, Hongen Liao, and Takeyoshi
Dohi. Development and in-vivo evaluation of a beam splitter typed viewing field
changeable endoscope, JSCAS 2008, The Incentive Award, 2008

Hiromasa Yamashita, Gontaro Kitazumi, Tetsuko Ishii, Noriyoshi Nakayama, Yasumasa Katsuike,
Yoshitaka Miyamoto, Akihiko Ishiyama, Keri Kim, Takeyoshi Dohi and Toshio
Chiba, 2D-Ultrasound Image-guided Delivery system of High Intensity Focused
Ultrasound for Therapy of Fetal Cardiac Diseases, The 24th Society of Life
Support Technology, The Incentive Award of the Barrier-Free System Instrument
Foundation, 2008

Japanese Government (MONBUSHO) Scholarship

Apr. 2003 – Mar. 2008 (5 years)

Publications

Journal articles

1. Choi DE, Kim SH, Lee WS, Kang S, **Kim K (Corresponding author)**. Development and preclinical trials of a surgical robot system for endoscopic endonasal transsphenoidal surgery. (SCIE) Int J Control Autom Syst. Accepted
2. Oh GS, Cho HJ, Suh SB, Lee DH, **Kim K (Corresponding author)**. Multicolor Fluorescence Imaging using a Single RGB-IR CMOS Sensor for Cancer Detection with smURFP-labeled probiotics. (SCIE) Biomed Opt Express. 2020 June;11(6): 2951-2963
3. Kim JR, Kwon SI, **Kim K (Corresponding author)**. Novel block mechanism for rolling joints in minimally invasive surgery. (SCI) Mech Mach Theory. 2020, May; 147; 103774 <https://doi.org/10.1016/j.mechmachtheory.2019.103774>
4. Park CM, Park S, Hong HP, Jeon IH, **Kim K (Corresponding author)**. Development of an End-Effector Device for Loose Body Removal in Hip Arthroscopy. (SCI) Proc Inst Mech Eng H. 2018 Oct;232(10): 987–998
5. Park CM, Kwon SI, Hong HP, Kang S, Jeon IH, Park S, **Kim K (Corresponding author)**. Development and preclinical trials of a wire-driven end effector device for frozen shoulder treatment. (SCI) Med Biol Eng Comput. 2018 Jul;56(7):1149-1160
6. Lee DY, Kim J, Kim JS, Baek C, Noh G, Kim DN, **Kim K**, Kang S, Cho KJ. Anisotropic Patterning to Reduce Instability of Concentric-Tube Robots. (SCI) IEEE Trans Robot. 2015 Dec; 31(6): 1311-1323
7. Moon H, Jeong J, Kang S, **Kim K**, Song Y, Kim J. Fiber-Bragg-grating-based ultrathin shape sensors displaying single-channel sweeping for minimally invasive surgery. (SCI) Opt Lasers Eng. 2014 AUG; 59: 50-55
8. Gim S, Moon H, Shin HJ, Lee D, Kang S, **Kim K (Corresponding author)**. Parallel guidance endoscopic optical coherence tomography system for internal diagnosis through active cannulas. (SCI) Opt Eng. 2014 Aug; 53(8): 084105. doi:10.1117/1.OE.53.8.084105
9. Kamiuchi H, Masamune K, Kuwana K, Dohi T, **Kim K**, Yamashita H, Chiba T. A beam-splitter-type 3-D endoscope for front view and front-diagonal view images. Int J Comput Assist Radiol Surg. 2013 Jan;8(1):111-20
10. Yamashita H, Oka K, Yamanaka N, Seki T, **Kim K**, Kuwana K, Masamune K, Naganawa A, Takeyoshi D, Chiba T. Laser therapy for twin-to-twin transfusion syndrome: today and near-future. The Journal of Japan Society for Laser Surgery and Medicine. 2012, 33(2): 122-130 (in Japanese)
11. Oka K, Seki T, Naganawa A, **Kim K (Corresponding author)**, Chiba T. A novel ultra-small composite optical fiberscope. (SCI) Surg Endosc. 2011 Jul; 25(7): 2368-2371

12. **Kim K (Corresponding author)**, Kubota M, Ohkawa Y, Shiraishi T, Kawai T, Kobayashi A, Yamashita H, Chiba T. A novel ultralow-illumination endoscope system. (SCI) Surg Endosc. 2011 Jun; 25(6): 2029-2033
13. Ishiyama A, **Kim K (Corresponding author)**, Yamashita H, Miyamoto Y, Enosawa S, Chiba T. New fluorescence endoscope for use in twin-twin transfusion syndrome: In vivo visualization of placental blood vessels. (SCI) Med Eng Phys. 2011 Apr; 33(3): 381-385
14. **Kim K (Corresponding author)**, Kamiuchi H, Masamune K, Dohi T. A new, safer, controllable field-of-view endoscope avoiding movement inside body cavities. (SCI) Med Eng Phys. 2011Mar; 33(2): 174-179
15. Seki T, Oka K, Naganawa A, Yamashita H, **Kim K (Corresponding author)**, Chiba T. Laser distance measurement using a newly developed composite-type optical fiberscope for fetoscopic laser surgery, (SCI) Opt Lasers Eng 2010 Oct; 48: 974-977
16. Oka K, Seki T, Naganawa A, Yamashita H, **Kim K (Corresponding author)**, Chiba T. The development of composite-type optical fiberscope system for fetoscopic laser photocoagulation of chorionic plate anastomosing vessels (FLPC). (SCIE) Minim Invasiv Ther 2010 Apr; 19(2): 94-99
17. Yamashita H, Kitazumi G, Ishii T, Nakayama N, Katsuike Y, Miyamoto Y, Ishiyama A, **Kim K**, Dohi T and Chiba T. Automatic delivery system of high intensity focused ultrasound with real-time 2D-ultrasound imaging analysis for fetal cardiac intervention, Journal of The Society of Life Support Technology 2009; 21(4): 33-40 (in Japanese)
18. Seki T, Oka K, Naganawa A, Yamashita H, **Kim K (Corresponding author)**, Chiba T. Blood flow measurement system for fetoscopic laser photocoagulation of chorionic plate anastomosing vessels. (SCIE) Minim Invasiv Ther 2009; 18(6): 350-355

Patents (해외 4 건, 국내 18 건)

1. 김계리, 김정률, 권성일, 구름 조인트와 핀 커플링을 이용한 관절 구조체 및 이를 구비한 튜브 삽입형 장치 (Kr, 10-2019-0041382, 2019.4.9) (등록번호 Kr, 10-2128269-00-00, 2020. 6. 24)
2. 김계리, 류근웅, 강성철, 가시광 및 근적외선 광을 모두 가시화할 수 있는 내시경 장치 (Kr, 10-2018-0097394, 2018.08.21) (등록번호 Kr, 10-2112229, 2020. 5. 12)
3. 김계리, 류근웅, 박철민, 내시경 로봇 (Kr, 10-2018-0073251, 2018.6.26) (등록번호 Kr, 10-2056813, 2019. 12. 11)
4. 김계리, 류근웅, 박철민, 강성철, 내시경 로봇 (Kr, 10-2017-0132697, 2017.10.12)

- (등록번호 Kr, 10-1999145, 2019.07.01)
5. 최우석, 류근웅, 권성일, 김계리, 강성철, 수술 기구 가이드 장치 (Kr, 10-2017-0050605, 2017.04.19) (등록번호 Kr, 10-1957221, 2019.03.06)
 6. 김계리, 권성일, 김희철, 렌즈를 이용해 레이저를 조향가능한 레이저 수술 장치 (Kr, 10-2016-0141204, 2016.10.27), (등록번호 KR, 10-1957219, 2019.03.06)
 7. 김계리, 박철민, 권성일, 전인호, 홍한표, 윤필환, 보호 튜브를 구비한 최소 침습 수술 기구 (Surgical Apparatus for Minimally Invasive Surgery Having Protective Tube), (Kr, 10-2016-0127528, 2016.10.04), (등록번호 KR, 10-1878466, 2018.07.09)
 8. Woosub Lee, Sungchul Kang, Dongeun Choi, Keri Kim, Tube continuum robot having a tube body capable of linear control and robot system for operation using thereof, (등록번호 US 9993308, 2018.6.12), (US 14/963643, 2015. 12. 09)
 9. 김계리, 김윤정, 이재현, 전인호, 홍한표, Anold Adikrishna, 신축적 소작기구 (Retractable flexible cautery device), (Kr, 2015-0125235, 2015. 9. 4) (등록번호 10-1835678, 2018. 2. 28)
 10. Keri Kim, Sungchul Kang, Soojun Lee, Woosub Lee, Sangmyung Kim, Suhyeon Gim, Tube insertion device having end effector capable of changing direction (US, 14/043,911, 2013.10.02), (등록번호 US 9901370, 2018, 2, 27)
 11. Keri Kim, Heechul Kim, Seong Il Kwon, Laser operation device capable of steering the laser using a lens (등록번호 US 9798137, 2017.10.24), (US 15/362067, 2016.11.28)
 12. 김계리, 김상명, 강성철, 이우섭, 유정훈, 내시경 로봇 (Endoscope robot) (Kr, 2015-0143050, 2015. 10. 13) (등록번호 10-1783437, 2017. 9. 25)
 13. 김계리, 권성일, 강성철, 조향 가능한 레이저 수술 장치 (Steerable Laser Operation device), (등록번호 10-1724315, 2017. 4. 3), (Kr, 10-2016-0102251, 2016.08.11)
 14. Keri Kim, Sungchul Kang, Woosub Lee, Sangmyung Kim, Soojun Lee, Endoscope robot having joint structure with high curvature (US 14/264,579, 2014, 04, 29), (등록번호 US 9526582, 2016, 12, 27)
 15. 이우섭, 강성철, 최동은, 김계리, 복수의 튜브 연속체를 사용한 수술용 로봇 시스템 (등록번호 10-1700885, 2017.1.23) (Kr, 2015-0088921, 2015. 6. 23)
 16. 이우섭, 강성철, 최동은, 김계리, 선형 제어가 가능한 튜브체를 구비하는 튜브 연속체 로봇 (Tube continuum robot having a tube body capable of linear control) (등록번호 10-1667933, 2016. 10. 14), (Kr, 2014-0090899, 2014. 7. 18))
 17. 지광구 김계리 강성철 이우섭, 초탄성 특성이 개선된 선재 및 그를 이용한 튜브 연속체 로봇 (등록번호 10-1535520, 2015. 7. 3), (한국, 2013-0130711, 출원일: 2013.10.31)
- [Kwang koo Jee, Keri Kim, Sungchul Kang, Woosub Lee, Wire rod having improved super-elastic characteristics and Tube continuum robot using the same (Kr 10-1535520,

2015. 7. 3), (Kr, 2013-0130711, 2013.10.31)]
18. 김계리, 강성철, 이우섭, 김상명, 이수준, 고곡률 관절 구조체를 구비한 내시경 로봇 (등록번호 10-1525457, 2015.05.28) (Kr, 2014-0014945, 2014, 2, 10)
[Keri Kim, Sungchul Kang, Woosub Lee, Sangmyung Kim, Soojun Lee, Endoscope robot having joint structure with high curvature]
 19. 김계리 강성철 이수준 이우섭 김상명 김수현, 방향전환이 가능한 엔드 이펙터를 구비하는 튜브 삽입장치 (등록번호 10-1506932, 2015. 3. 24) (Kr, 2013-0089474, 출원일: 2013.07.29)
[Keri Kim, Sungchul Kang, Soojun Lee, Woosub Lee, Sangmyung Kim, Suhyeon Gim, Tube insertion device having end effector capable of changing direction (Kr 10-1506932, 2015. 3. 24), (Kr, 2013-0089474, 2013.07.29)]
 20. 김계리 김수현 이수준 강성철 이득희 최태영, 광 간섭 단층 영상 프로브의 평행 탐색 가이드 기능을 구비한 가이드 장치 (등록번호 10-1476801, 등록일자 2014. 12. 19), (Kr, 10-2013-0149116, 2013.12.03)
[Keri Kim, Suhyeon Gim, Soojun Lee, Sungchul Kang, Deukhee Lee, Taeyoung Choi, Apparatus for parallel scanning guide of Optical Coherence Tomography edoscopic probe (Kr 10-1476801, 2014. 12. 19), (Kr, 10-2013-0149116, 2013.12.03)]
 21. 김계리 최태영 이수준 강성철 김수현 문효원 이득희 김상명, 광 간섭 단층 영상 프로브의 평행 탐색 가이드 기능을 구비한 가이드 장치 및 이를 이용한 프로브의 가이드 방법 (등록번호 10-1466707, 등록일자 2014.11.24), (Kr, 2013-0119748, 2013.10.08)
[Keri Kim, Taeyoung Choi, Soojun Lee, Sungchul Kang, Suhyeon Gim, Hyowon Moon, Deukhee Lee, Sangmyung Kim, Apparatus and method for parallel scanning guide of Optical Coherence Tomography edoscopic probe (Kr, 10-1466707, 2014.11.24), (Kr, 2013-0119748, 2013.10.08)]
 22. 김계리 강성철 조규진 이대영 김지석 박용재, 비등방성 패턴을 갖는 튜브 연속체 로봇 및 튜브 제조방법 (등록번호 10-1466705, 등록일자 2014.11.24) (한국, 2013-0041767, 출원일: 2013.04.16)
[Keri Kim, Sungchul Kang, Kyu jin Cho, Dae young Lee, Ji suk Kim, Yong jai Park, Tube Continuum Robot and Method for Manufacturing Tube Having Anisotropic Patterns (Kr 10-1466705, 2014.11.24), (Kr, 2013-0041767, 2013.04.16)]

Patent pending

1. 김계리, 오경석, 조홍준, 이득희, 회전형 필터유닛을 구비하는 내시경 장치 (Kr,

- 10-2020-0008582, 2020, 01, 22)
2. 김계리, 오경석, 조흥준, 이득희, 왕복형 필터를 구비하는 내시경 장치 (Kr, 10-2020-0008583, 2020, 01, 22)
 3. 인현기, 김계리, 이승준, 이명준, 김정률, 조흥준, 문용환, 최종규, 공압 성장 메커니즘을 이용한 스마트 슬링 장치 (Kr, 10-2019-0175080, 2019.12.26)
 4. 김계리, 김정률, 권성일, 굽힘 힘이 증가된 관절 구조체 및 이를 구비한 튜브 삽입형 장치 (Kr, 10-2019-0132116, 2019.10.23)
 5. 김계리, 권성일, 김정률, 탄성 부재를 구비한 관절 구조체 및 이를 구비하는 튜브 삽입형 장치 (Kr, 10-2019-0117451, 2019.09.24)
 6. 김계리, 김정률, 권성일, 구름 조인트와 돌기 부재를 이용한 관절 구조체 및 이를 구비한 튜브 삽입형 장치 (Kr, 10-2019-0056877, 2019.5.15)
 7. Kim K, Kim JR, Kwon SI, Articulating structure using rolling joint and projection member, and tube insert device having the same (16/711434, 2019.12.12)
 8. Kim K, Kim JR, Kwon SI, Articulating structure using rolling joint and pin coupling, and tube insert device having the same (16/711430, 2019.12.12)
 9. 김계리, 김정률, 권성일, 잠금 기구 (Kr, 10-2019-0020330, 2019.02.21)
 10. Keri Kim, Geunwoong Ryu, Chulmin Park, Endoscope robot (US, 16/181353, 2018.11.06)
 11. 김계리, 박철민, 권성일, 류근웅, 전인호, 곽재만, 송기탁, 최소 침습 수술용 장치, (PCT/KR2018/010847)
 12. 김계리, 박철민, 권성일, 류근웅, 전인호, 곽재만, 송기탁, 최소 침습 수술용 장치 (Kr, 10-2018-0086752, 2018.07.25)
 13. 김계리, 권성일, 강성철, 조향 가능한 레이저 수술 장치 (Steerable Laser Operation device), (US 15/363068, 2016.11.29)
 14. 김계리, 김윤정, 이재현, 전인호, 홍한표, Anold Adikrishna, 신축적 소작기구 (Retractable flexible cautery device), (PCT/KR2016/009854, 2016. 9. 2)
 15. Keri Kim, Sungchul Kang, Kyu jin Cho, Dae young Lee, Ji suk Kim, Yong jai Park, Tube Continuum Robot and Method for Manufacturing Tube Having Anisotropic Patterns (US, 13/930,124 , 2013.06.28)
 16. Keri Kim, Takeyoshi Dohi, Ken Masamune, Tsuneo Fukuyo: U.S. Pub. No. US 2009/0112061 A1, Endoscope capable of varying field of vision, Apr. 30, 2009

Conference proceedings

1. Seong-il Kwon, Sara Van Kalker, Sung hwa Choi, Keri Kim, Kyung su Park, Sungchul Kang, Chunwoo Kim, Seok Chang Ryu, Design and Fabrication of Transformable Head

- Structures for Endoscopic Catheters, ICRA 2019
2. S. I. Kwon, GW Ryu, S. C. Kang, and K. Kim, A Steerable Endoscope for Transnasal Skull Base Surgery, 40th International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), July, 2018
 3. GW Ryu, D.Y. Kim, C. M. Park, K. Kim, Intuitive Hand-held Instrument for Loose Body Removal in Arthroscopic Synovial Chondromatosis Surgery, 40th International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), July, 2018
 4. S. I. Kwon, W. S. Choi, GW Ryu, S. C. Kang and K. Kim, Endoscopic endonasal skull base surgery system, URAI 2017
 5. C. M. Park, S. I. Kwon, S. C. Kang, H. P. Hong, I. H. Jeon, S. S. Park, and K. Kim, Development and Preclinical Trials of a Wire-Driven End-Effector Device for Frozen Shoulder Treatment, Daejeon, Korea, IROS 2016
 6. Seong-il Kwon, Heechul Kim and Keri Kim, Laser beam steering system for epiduroscopic laser treatment: A feasibility study, Daejeon, Korea, ACCAS 2016
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