

Sangyoon Han

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EDUCATION

University of California, Berkeley

Aug 2010 - May 2016

- Ph.D. in Electrical Engineering and Computer Sciences
- Advisor: Professor Ming C. Wu

Seoul National University

Mar 2006 - Aug 2010

- B.S. in Electrical Engineering, Summa cum laude
- GPA: 4.19/4.30 (major), 4.08/4.30 (overall)

ACADEMIC APPOINTMENTS

Daegu Gyeongbuk Institute of Science and Technology (DGIST)

Feb 2020 - Current

- Assistant Professor
- Department of Robotics & Mechatronics Engineering

Korea Advanced Institute of Science and Technology (KAIST)

July 2019 – Feb 2020

- Postdoctoral researcher (in substitution of a mandatory military service)
- Advisor: Prof. Hansuek Lee & Prof. Yong-Hee Lee
- Department of Physics

JOURNAL PUBLICATIONS

*: Corresponding author, †: Equal contribution

1. D. U. Kim, Y. J. Park, D. Y. Kim, Y. Jeong, M. G. Lim, M. S. Hong, M. J. Her, Y. Rah, D. J. Choi, **S. Han***, and K. Yu*, "[Programmable photonic arrays based on microelectromechanical elements with femtowatt-level standby power consumption](#)," *Nature Photonics*, 2023.
2. Y. J. Park, M. J. Her, Y. Jeong, D. J. Choi, D. U. Kim, M. G. Lim, M. S. Hong, H. S. Gwon, K. Yu*, and **S. Han***, "[Fully tunable Fabry-Pérot cavity based on MEMS Sagnac loop reflector with ultra-low static power consumption](#)," *Microsystem & Nanoengineering*, Under revision.
3. M. G. Lim, Y. J. Park, D. J. Choi, D. U. Kim, M. S. Hong, M. J. Her, A. Y. Takabayashi, Y. Jeong, J. Park, S. Han, N. Quack, Y. Bae, K. Yu*, and **S. Han***, "[Fully reconfigurable MEMS-based second-order coupled-resonator optical waveguide \(CROW\) with ultra-low tuning energy](#)," *Opt. Express*, 2023.
4. M. S. Hong, M. G. Lim, D. U. Kim, M. J. Her, Y. J. Park, D. J. Choi, Y. Jeong, J. Park, S. Han, Y.-H. Chun, S. C. Eom, S. Oh, K. Yu, and **S. Han***, "[Programmable MZI based on a silicon photonic MEMS-tunable delay line](#)," *Opt. Lett.*, 2023.
5. Y. Rah, Y. Jeong, **S. Han**, and K. Yu, "[Low Power Coherent Ising Machine Based on Mechanical Kerr Nonlinearity](#)," *Phys. Rev. Lett.*, 2023.
6. D. Kim†, **S. Han†**, D.-G. Kim, K. Ko, D.-Y. Choi, and H. Lee, "[Two-point coupling method to independently control coupling efficiency at different wavelengths](#)," *Optics Letters*, 2023.

7. I.K. Kim, D.U. Kim, V.H. Nguyen, **S. Han***, T.J. Seok*, "[High-performance and compact silicon photonic 3-dB adiabatic coupler based on shortest mode transformer method](#)", *IEEE Photonics Journal*, 2021.
8. **S. Han†**, J. Beguelint, L. Ochikubo, J. Jacobs, T. J. Seok, K. Yu, N. Quack, C.-K. Kim, R. S. Muller, and M. C. Wu, "[32 × 32 silicon photonic MEMS switch with gap-adjustable directional couplers fabricated in commercial CMOS foundry](#)," *SPIE J. Opt. Microsyst.*, 2021, **selected as a front cover**
9. J. Hwang, D.-G. Kim, **S. Han**, D. Jeong, Y.-H. Lee, D.-Y. Choi, and H. Lee, "[Supercontinuum generation in As₂S₃ waveguides fabricated without direct etching](#)," *Optics Letters*, 2021.
10. D.G. Kim†, **S. Han†**, J. Hwang, I.H. Do, D. Jeong, J.H. Lim, Y.H. Lee, M. Choi, Y.H. Lee, D.Y. Choi, H. Lee, "[Universal light-guiding geometry for on-chip resonators having extremely high Q-factor](#)", *Nat. Commun.*, 2020.
11. **S. Han**, T. J. Seok, C. -K. Kim, R. S. Muller, and M. C. Wu, "[Multicast silicon photonic MEMS switches with gap-adjustable directional couplers](#)," *Optics Express*, 2019, 17561-17570.
12. H. Sattari, T. Graziosi, M. Kiss, T. J. Seok, **S. Han**, M. C. Wu, N. Quack, "[Silicon photonic MEMS phase-shifter](#)," *Optics Express*, 2019.
13. S. J. Yoon, J. Lee, **S. Han**, C. K. Kim, C. W. Ahn, M. K. Kim, and Y. H. Lee, "[Non-fluorescent nanoscopic monitoring of a single trapped nanoparticle via nonlinear point sources](#)," *Nature Communications*, 2018.
14. **S Han**, T. J. Seok, K. Yu, N. Quack, R. S. Muller, and M. C. Wu, "[Large-scale polarization-insensitive silicon photonic MEMS switches](#)," *Journal of Lightwave Technology*, 2018.
15. H. Y. Hwang, J. S. Lee, T. J. Seok, A. Forenchich, H. R. Grant, D. Knutson, N. Quack, **S. Han**, R. S. Muller, G. C. Papen, M. C. Wu, and P. O'. Brien, "[Flip chip packaging of digital silicon photonics MEMS switch for cloud computing and data centre](#)," *IEEE Photonics Journal*, 2017.
16. N. Quack, T. J. Seok, **S. Han**, R. S. Muller, and M. C. Wu, "[Scalable row/column addressing of silicon photonic MEMS switches](#)," *IEEE Photonics Technology Letters*, 2016.
17. T. J. Seok, N. Quack, **S. Han**, R. S. Muller, and M. C. Wu, "[Large-scale broadband digital silicon photonic switches with vertical adiabatic couplers](#)," *Optica*, 2016.
18. T. J. Seok, N. Quack, **S. Han**, R. S. Muller, and M. C. Wu, "[Highly scalable digital silicon photonic MEMS switches](#)," *Journal of Lightwave Technology*, 2015.
19. **S. Han**, T. J. Seok, N. Quack, B. W. Yoo, and M. C. Wu, "[Large-scale silicon photonic switches with movable directional couplers](#)," *Optica*, 2015.

CONFERENCE PUBLICATIONS

*: Corresponding author

1. J. H. Kim, D. U. Kim, M. G. Lim, Y. J. Park, D. J. Choi, M. S. Hong, K. Yu, **S. Han***, "Reliability assessment of a fully packaged 1x12 silicon photonic MEMS multicast switch," *SPIE Photonics West*, 2024. **(invited talk)**.
2. D. U. Kim, M. G. Lim, Y. J. Park, D. J. Choi, M. S. Hong, D. Kim, I.-W. Kim, H. Jung, Y.-S. Kim, H.-T. Lim, K. Yu, **S. Han***, "Ultra-low power and high-performance tunable MZI on silicon photonics MEMS platform for quantum photonic applications," *SPIE Photonics West*, 2024. **(invited talk)**.
3. D. U. Kim, M. G. Lim, D. J. Choi, Y. J. Park, M. J. Her, M. S. Hong, Y. Jeong, K. Yu*, and **S. Han***, "[High-Extinction Reconfigurable Mach-Zehnder Interferometer Based on Silicon Photonic MEMS](#)," *Conference on Lasers and Electro-Optics Pacific Rim (CLEO-PR)*, 2023.
4. Y. J. Park, M. J. Her, D. U. Kim, D. J. Choi, M. G. Lim, M. S. Hong, **S. Han***, "[Fully Tunable Fabry-Pérot Cavity on](#)

- [Silicon Photonic MEMS with 10 nW Static Power Consumption](#),” *Conference on Lasers and Electro-Optics (CLEO)*, 2023.
5. S. Nam, D. J. Choi, D. U. Kim, Y. J. Park, M. J. Her, M. G. Lim, M. S. Hong, H. Song, **S. Han*** and J. Yu*, “Development of Silicon Photonic-based Immersion Opto-mechanical Ultrasound Sensor Array with Ultra-thin Membrane: Preliminary study,” *IEEE International Ultrasonics Symposium (IUS)*, 2022. ***Corresponding author**
 6. **S. Han***, K. Yu, “Silicon photonic MEMS for programmable photonics,” *European Conference on Optical Communication (ECOC)*, 2022. **(invited talk)**.
 7. **S. Han***, K. Yu, “Ultra-Low Power Programmable Silicon Photonic MEMS,” *IEEE International Conference on Optical MEMS and Nanophotonics (OMN)*, 2022 IEEE. **(invited talk)**.
 8. M. S. Hong, D. U. Kim, M. G. Lim, D. J. Choi, M. J. Her, Y. J. Park, Y. Jeong, J. Park, S. Han, K. Yu*, and **S. Han***, “[Programmable MZI Based on Si Photonic MEMS Tunable Delay Line](#),” *Conference on Lasers and Electro-Optics Pacific Rim (CLEO-PR)*, 2022, OSA.
 9. D. J. Choi, S. Nam, D. U. Kim, Y. J. Park, M. J. Her, M. G. Lim, M. S. Hong, H. Song, J. Yu*, and **S. Han***, “[Single Si Layer Immersion Optical Ultrasound Sensor with Ultra-thin Opto-mechanical Membrane](#),” *Conference on Lasers and Electro-Optics Pacific Rim (CLEO-PR)*, 2022, OSA.
 10. M. J. Her, D. U. Kim, D. Y. Kim, Y. Jeong, Y. J. Park, D. J. Choi, M. S. Hong, Y. Rah, K. Yu*, and **S. Han***, “[Fully Tunable Sagnac Loop Reflector with 0.1 MW Static Power Silicon Photonic MEMS](#),” *Conference on Lasers and Electro-Optics (CLEO)*, 2022.
 11. **S. Han***, K. Yu*, D. U. Kim, Y. Jeong, D. Y. Kim, and Y. J. Park, “[Ultra-Low Power and Scalable Programmable Silicon Photonic MEMS](#),” *Conference on Lasers and Electro-Optics (CLEO)*, 2022 **(invited talk)**. ***Corresponding author**
 12. D. U. Kim, D. Y. Kim, Y. Jeong, D. J. Choi, Y. J. Park, M. J. Her, M. S. Hong, M. G. Lim, Y. Rah, K. Yu*, and **S. Han***, “[Ultra-Low-Power Unitary Matrix Multiplier Based on Silicon Photonic MEMS](#),” *Conference on Lasers and Electro-Optics (CLEO)*, 2022.
 13. **S. Han***, “Scalable nanowatt programmable photonics,” *International Conference on Advanced Materials and Devices (ICAMD)*, 2021, The Korean Physical Society **(invited talk)**.
 14. D. U. Kim, M. S. Hong, D. Y. Kim, Y. J. Park, A. Y. Takabayashi, Y. Jeong, J. Park, S. Han, N. Quack, K. Yu*, and **S. Han***, “[8 × 8 Programmable Multi-Beam Pattern Projection Based on Multicast Silicon Photonic MEMS Switches](#),” *Optical Fiber Communications Conference and Exhibition (OFC)*, 2021, OSA.
 15. Y. J. Park, D. U. Kim, D. Y. Kim, M. S. Hong, A. Y. Takabayashi, Y. Jeong, J. Park, S. Han, N. Quack, K. Yu*, **S. Han***, “[Fully Reconfigurable Coupled-Resonator Optical Waveguides \(CROWs\) with 10 nW Static Power MEMS](#),” *Conference on Lasers and Electro-Optics (CLEO)*, 2021, OSA.
 16. D. Y. Kim, Y. J. Park, D. U. Kim, M. S. Hong, A. Y. Takabayashi, Y. Jeong, J. Park, S. Han, N. Quack*, K. Yu*, **S. Han***, “[16-Core Recirculating Programmable Si Photonic MEMS](#),” *Conference on Lasers and Electro-Optics (CLEO)*, 2021, OSA.
 17. D. -Y. Choi, **S. Han**, J. Hwang, Y. -H. Lee, D. -G. Kim, I. H. Do, D. Jeong, H. Lee, “[Chalcogenide-silica hybrid planar platform for high performance nonlinear optic devices](#),” *OSA Laser Congress*, 2019, OSA.
 18. **S. Han**, D. -G. Kim, J. Hwang, I. H. Do, D. Jeong, Y. -H. Lee, D. -Y. Choi, and H. Lee, “[Brillouin lasers based on 11 million-Q on-chip chalcogenide resonators without direct etch process](#),” *International Conference on Optical MEMS and Nanophotonics (OMN)*, 2019, IEEE.
 19. **S. Han**, D. -G. Kim, J. Hwang, I. H. Do, D. Jeong, Y. -H. Lee, D. -Y. Choi, and H. Lee, “[On-chip stimulated Brillouin lasers based on chalcogenide glass resonators with 10 million Q-factor](#),” *Conference on Lasers and Electro-*

- Optics (CLEO)*, 2019, OSA, paper SM4O.2.
20. N. Quack, T. J. Seok, **S. Han**, H. Sattari, T. Graziosi, M. Kiss, R. S. Muller, and M. C. Wu, "[Surface micromachined silicon photonic MEMS: a scalable technology platform for photonic network components](#)," *Photonic Networks and Devices*, 2018, OSA, NeM4F.1.
21. T. Graziosi, H. Sattari, T. J. Seok, **S. Han**, M. C. Wu, and N. Quack, "[Silicon photonic MEMS variable optical attenuator](#)," *Proceedings of SPIE: MOEMS and Miniaturized Systems XVII*, 2018, SPIE, 105450H.
22. H. Sattari, T. Graziosi, M. Kiss, T. J. Seok, **S. Han**, M. C. Wu, and N. Quack, "[Analog silicon photonic MEMS phase-shifter with double-step electrostatic actuation](#)," *International Conference on Optical MEMS and Nanophotonics (OMN)*, 2017, IEEE.
23. T. J. Seok, **S. Han**, and M. C. Wu, "[Large-scale silicon photonic switches with MEMS](#)," *IEEE Photonics Society Summer Topical Meeting Series (SUM)*, 2017, IEEE.
24. M. C. Wu, T. J. Seok, and **S. Han**, "[Silicon photonic switches for datacenters](#)," *Frontiers in Optics*, 2016, OSA, FTu1D.6.
25. T. J. Seok, H. Y. Hwang, J. S. Lee, A. Forencich, H. R. Grant, D. Knutson, N. Quack, **S. Han**, R. S. Muller, L. Carroll, G. C. Papen, P. O'Brien, and M. C. Wu, "[12x 12 packaged digital silicon photonic MEMS switches](#)," *IEEE Photonics Conference (IPC)*, 2016, IEEE.
26. **S. Han**, T. J. Seok, K. Yu, N. Quack, R. S. Muller, and M. C. Wu, "[50x50 polarization-insensitive silicon photonic MEMS switches: design and experiment](#)," *European Conference on Optical Communication (ECOC)*, 2016, VDE, Post Deadline paper.
27. J. Jacobs, T. Graziosi, M. Kiss, **S. Han**, T. J. Seok, M. C. Wu, and N. Quack, "[Die level release of silicon photonic MEMS](#)," *International Conference on Optical MEMS and Nanophotonics (OMN)*, 2016, IEEE.
28. M. C. Wu, T. J. Seok, **S. Han**, and N. Quack, "[MEMS-enabled scalable silicon photonic switches](#)," *Frontiers in Optics*, 2015, OSA, FW3B.2.
29. T. J. Seok, N. Quack, **S. Han**, W. Zhang, R. S. Muller, and M. C. Wu, "[64x 64 low-loss and broadband digital silicon photonic MEMS switches](#)," *European Conference on Optical Communication (ECOC)*, 2015, IEEE.
30. M. C. Wu, T. J. Seok, **S. Han**, N. Quack, "[Large-scale, MEMS-actuated silicon photonic switches](#)," *International Conference on Photonics in Switching (PS)*, 2015, IEEE.
31. T. J. Seok, N. Quack, **S. Han**, W. Zhang, R. S. Muller, and M. C. Wu, "[Reliability study of digital silicon photonic MEMS switches](#)," *International Conference on Group IV Photonics (GFP)*, 2015, IEEE.
32. N. Quack, T. J. Seok, **S. Han**, W. Zhang, R. S. Muller, and M. C. Wu, "[Row/column addressing of scalable silicon photonic MEMS switches](#)," *International Conference on Optical MEMS and Nanophotonics (OMN)*, 2015, IEEE.
33. **S. Han**, T. J. Seok, C. K. Kim, R. S. Muller, and M. C. Wu, "[Multicast 4x 20 silicon photonic MEMS switches](#)," *Conference on Lasers and Electro-Optics (CLEO)*, 2015, OSA, Stu1F.1.
34. M. C. Wu, **S. Han**, T. J. Seok, and N. Quack, "[Large-port-count MEMS silicon photonics switches](#)," *Optical Fiber Communications Conference and Exhibition (OFC)*, 2015, IEEE, M2B.3.
35. T. J. Seok, N. Quack, **S. Han**, and M. C. Wu, "[50x 50 digital silicon photonic switches with MEMS-actuated adiabatic couplers](#)," *Optical Fiber Communications Conference (OFC)*, 2015, IEEE, M2B4.
36. M. C. Wu, **S. Han**, T. J. Seok, and N. Quack, "[Monolithic large-scale optical switches using silicon photonic MEMS](#)," *OptoElectronics and Communication Conference (OECC)*, 2014, IEEE.
37. N. Quack, J. Ferrara, S. Gambini, **S. Han**, C. Keraly, P. Qiao, Y. Rao, P. Sandborn, L. Zhu, S. -L. Chuang, E. Yablonovitch, B. Boser, C. Chang-Hasnain, and M. C. Wu, "[Development of an FMCW LADAR source chip using](#)

[MEMS-electronic-photonic heterogeneous integration](#),” **GOMACTech Conference**, 2014.

38. **S. Han**, T. J. Seok, N. Quack, B. -W. Yoo, and M. C. Wu, “[Monolithic 50× 50 MEMS silicon photonic switches with microsecond response time](#),” **Optical Fiber Communications Conference (OFC)**, 2014, M2K.2.

Selected Research Projects

Meta Platforms Technology project, principal investigator

- Project name: undisclosed
- Supporting agency: Meta Platforms Technologies, LLC, California

Samsung Science & Technology Foundation Project, principal investigator

- Project name: On-Chip Optical Ising Machine for Combinatorial Optimization Problems
- Supporting Agency: Samsung Science & Technology Foundation
- Duration/budget total: 2020-2023/~\$1.2 million

Samsung Science & Technology Foundation Project, co-principal investigator

- Project name: Development of high-sensitivity, broadband sensor array based on silicon photonics platform for ultrasound/optoacoustic imaging
- Supporting agency: Samsung Science & Technology Foundation
- Duration/budget total: 2021-2023/~\$682,000 USD

KIST future core next-generation semiconductor technology development project, co-principal investigator

- Project name: Development of silicon MEMS-based optical quantum state control devices
- Supporting agency: KIST (Korea Institute of Science and Technology)
- Duration/budget total: 2023-2027/~\$342,000 USD

Future defense technology research and development project, principal investigator

- Project name: Research on reconfigurable low-power, low-loss photonics integrated circuits and optical signal control
- Supporting agency: Agency for Defense Development of South Korea
- Duration/budget total: 2021-2023/~\$255,000 USD

Advanced Technology Center (ATC+) support program for corporate research institutes, principal investigator

- Project name: Development of silica/silicon AWG-type photonic devices for optical communication and sensor systems
- Supporting agency: Korea Evaluation Institute of Industrial Technology (KEIT)
- Duration/total amount: 2022-2025/~\$324,000 USD

LIG Nex1 industry-academia cooperation technology development project, principal investigator

- Project name: Research on reconfigurable programmable photonics chips
- Supporting agency: LIG Nex1 Co., Ltd.
- Duration/budget total: 2022-2023/~\$128,000 USD

Basic research support project, principal investigator

- Project name: Kilohertz-level narrow-linewidth Brillouin laser for optical communication band integrated on silicon photonics platform
- Supporting agency: National Research Foundation of Korea (NRF)
- Duration/budget total: 2017-2020 (completed)/~\$128,000 USD

LIG Nex1 industrial research service, principal investigator

- Project name: 16-core recirculating silicon photonic variable circuit
- Supporting agency: LIG Nex1 Co., Ltd.
- Duration/budget total: 2021-2023 (completed)/~\$111,000 USD

Medium-sized enterprise administration industry-academia cooperation technology development project,
principal investigator

- Project name: Development of high-sensitivity, broadband optoacoustic sensor for non-contact/non-destructive inspection
- Supporting agency: Korea Technology and Information Promotion Agency for Small and Medium Enterprises (KOTRA)
- Duration/budget total: 2022-2022 (completed)/~\$50,000 USD

KIST open research program, principal investigator

- Project name: Research on multifunctional ultra-high integration quantum photonic circuits based on silicon photonics
- Supporting agency: KIST
- Duration/budget total: 2021-2021 (completed)/~\$43,000 USD

Invited Talks

IEEE SUM Conference (expected)

- Event name: IEEE Summer Topicals Meeting Series (SUM), 2024

PIERS Conference (expected)

- Event name: Photonics and Electromagnetics Research Symposium (PIERS), 2024

CLEO Conference

- Event name: Conference on Lasers and Electro-Optics (CLEO), 2022
- Talk title: Ultra-Low Power and Scalable Programmable Silicon Photonic MEMS

ECOC Conference

- Event name: European Conference on Optical Communication (ECOC), 2022
- Talk title: Silicon photonic MEMS for programmable photonics

OMN Conference

- Event name: International Conference on Optical MEMS and Nanophotonics (IEEE OMN), 2022
- Talk title: Ultra-Low Power Programmable Silicon Photonic MEMS

UC Berkeley BSAC Seminar

- Event name: Berkeley Sensor & Actuator Center (BSAC), University of California, Berkeley, 2022
- Talk title: Ultra-Low Power and Scalable Programmable Silicon Photonic MEMS

UC Berkeley, Solid State Technology and Device

- Event name: EECS, University of California, Berkeley, 2019
- Talk title: High-Q chalcogenide device platform without direct etching process for non-linear and mid-IR applications

HONORS & AWARDS

Young Scientist Award, PIERS 2024

- From Photonics and Electromagnetics Research Symposium (PIERS) 2024

- Sponsored by Electromagnetics Academy, USA.

IEEE IUS Best Paper Award, Finalist

- At IEEE Ultrasonics Symposium (IUS), 2023
- Top 15 best papers out of 203 papers

Top Scored Paper at Optical Fiber Communication Conference and Exposition (OFC), 2021

- paper F4A.3, as a corresponding author

Collegiate Inventors Competition, 2015

- Held at United States Patent and Trademark Office (USPTO)
- Graduate bronze medal, Prize: USD 10,000

Corning Outstanding Student Paper Competition, 2014

- Held at Optical Fiber Communication Conference (OFC)
- Finalist (top 6 papers out of 341 papers)

Korea Foundation for Advanced Studies Scholarship, 2010 - 2015

- Full tuition and stipend for five years of graduate study

Top Scored Paper at Optical Fiber Communication Conference and Exposition (OFC), 2015

- paper M2B.4, as a co-author, paper is highlighted in OFC press release

Top Scored Paper, Optical Fiber Communication Conference and Exposition (OFC), 2014

- paper M2K.2, as a first author

Global leader fellow, 2008

- By College of Engineering of Seoul National University
- Sent to Tsinghua University (China) as an representative exchange student

University Students Contest of Engineering Mathematics, 2007

- By Korean Mathematical Society
- Excellence award

Early Career Development Scholarship, 2006

- Selected as one of top 16 (GPA rank based) among the entire freshmen students at College of Engineering of Seoul National University

Media Appearances

1. [국가나노기술정책센터 웹진, Feb 2024, “움직이는 광도파로로 광집적회로의 문제를 풀다”](#)
2. [Phys.org, Feb 2024, “Key innovation in photonic components could transform supercomputing technology”](#)
3. [조선비즈, Jan 2024, “DGIST·KAIST 연구진, 발열 문제 해결한 광-GPU 개발”](#)
4. [전자신문, Oct 2023, “DGIST, 'IEEE IUS 2023'에서 최우수 학생 논문상 수상”](#)
5. [과학동아, Mar 2022, “빛으로 구현하는 극초고속 계산기계”](#)
6. [전자신문, Nov 18th 2021, “DGIST, 삼성미래기술육성사업 선정...광대역 센서어레이 개발 추진”](#)
7. [뉴시스, Nov 16th 2021, “DGIST, 우주에서도 광통신 가능한 광스위치 개발”](#)
8. [전자신문, Jun 21st 2021, “한미 연구팀, 데이터처리속도 10만배 빠른 광라우터 양산기술 개발”](#)
9. [SPIE New, Apr 13th 2021, “Photonic MEMS switches going commercial”](#)
10. [메디컬투데이, Dec 23rd 2020, “KAIST, 초소형·저전력·저잡음 브릴루앙 레이저 구현”](#)
11. [서울신문, Oct 12th 2020, “DGIST 2020년도 하반기 ‘삼성미래기술육성사업’ 2개 과제 선정”](#)
12. [The Daily Californian, Nov 19th, 2015, “UC Berkeley team wins \\$10,000 for cloud-storage innovation.”](#)

13. [Huffington Post](#), Oct 29th, 2015, "2015 Collegiate Inventors Competition to be Held November 16."

14. [Technically Media](#), Nov 18th, 2015, "Meet the winners of the 2015 Collegiate Inventors Competition."

TEACHING EXPERIENCES

1. Introduction to integrated optics (3 units)

- DGIST: fall 2020, 2021, 2022.
- Developed the new course.

2. Advanced electromagnetism (3 units)

- DGIST: spring 2020, 2021, 2022, 2023.
- Developed the new course.

3. Introduction to electronic devices (3 units)

- DGIST: fall 2022.

INTERNATIONAL PATENTS

1. M. C. Wu, **S. Han**, T. J. Seok, N. Quack, B. -W. Yoo, "Silicon-photonics-based optical switch," US patent, **2018**, US10061085B2.

2. T. J. Seok, **S. Han**, M. C. Wu, "Silicon-photonics-based optical switch with low polarization sensitivity", US patent, **2019**, US20190253775A1.

3. H. Lee, D. Kim, **S. Han**, J. Hwang, "Optical device and method of fabricating the same," US patent, **2022**, US11294121.

LANGUAGE SKILLS

Chinese (Mandarin): fluent in speaking, reading, and writing

- Three years in overseas Chinese elementary school at Jeonju, Korea.
- One year in elementary school at Harbin, China.
- Half year in Tsinghua University at Beijing, China.

English: fluent in speaking, reading, and writing

Korean: native language