MinJae Kim

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EDUCATION

Sep. 2025 - **Stanford University**
PhD Student, Department of Materials Science and Engineering

Feb. 2019 - **Korea Advanced Institute of Science and Technology (KAIST)**
Feb. 2025 *Bachelor of Science in Materials Science and Engineering*

- Total GPA of 4.22/4.3 (99.2/100), *Summa Cum Laude*, Honor student
- Valedictorian and Representative Graduate at KAIST Commencement 2025 (Link)
- Global Leadership Award (Top 18 out of ca. 11,000 students)
- College of Engineering Leadership Award (Top 10 out of ca. 3,000 students)
- Dean's List (Top 3% in College of Engineering)
- Departmental Honor Scholarship (Top 4 out of ca. 120 students)
- Fulfilled obligatory military service in Republic of Korea Army (Mar. 2021 - Sep. 2022)

PUBLICATIONS

3. M.J. Kim*, **Polarization-specific trans-scale optical simulation of organic light-emitting diodes**, *Under review*

2. M.J. Kim†, J. Kim†, S. Yoo*, **Near-planar light outcoupling structures with finite lateral dimensions for ultra-efficient and optical crosstalk-free OLED displays**, *Nat. Commun.*, 2025, DOI: 10.1038/s41467-025-66538-6

1. M.J. Kim†, D. Choi†, C. Kang, S. Yoo*, **Ultralow-power carbon dioxide sensor for real-time breath monitoring**, *Device*, 2025, DOI: 10.1016/j.device.2024.100681

RESEARCH EXPERIENCE

Mar. 2024 - **Integrated Organic Electronics Lab., KAIST**
Aug. 2025 *Research Fellow (Advisor: Prof. Seunghyup Yoo)*

- Devised and led project on near-planar light outcoupling structure for ultra-efficient organic light-emitting diodes through trans-scale design
  - Won Best Paper Award at Optics and Photonics Congress 2024
- Conceived and developed ultralow-power and stable wearable pCO_2 sensor for seamless respiratory monitoring
  - Selected as representative research outcome of KAIST (Video)
  - Received 2024 KAIST Undergraduate Research Program (URP) grant
  - Won Grand Prix (Top 3 out of 60 projects) at 2024 URP Workshop

July 2022 - **Next-Generation Optoelectronic Nanomaterials Lab., KAIST**
Dec. 2023 *Undergraduate Researcher (Advisor: Prof. Himchan Cho)*

- Conceived and led project on highly luminescent and stable quasi-2D Dion-Jacobson phase perovskites based on multi-functional asymmetric spacer
  - Received 2023 KAIST Undergraduate Research Program (URP) grant
  - Won Grand Prix (Top 3 out of 60 projects) at 2023 URP Workshop
- Devised and worked on project on effective passivation of quasi-2D perovskites enabled by π-conjugated planar molecules
  - Won Best Poster Presentation Award at 2023 Spring Meeting of Korean Institute of Metals and Materials

HONORS AND AWARDS

Scholarships

2025 - 2030 **Kwanjeong Doctoral Study Abroad Fellowship**, Kwanjeong Foundation
2023 - 2024 **Woonhae Scholarship**, Woonhae Foundation
2023 **Young-Han Kim Global Leader Scholarship**, KAIST
2022 - 2026 **Dream Supporter Scholarship**, Global Hansang Dream Foundation
2021 - 2025 **KAIST Presidential Fellowship**, KAIST
2019 - 2025 **National Presidential Science Scholarship**, President of South Korea

Honors and Awards

2026 **National Delegate to Global Young Scientists Summit**, National Research Foundation of Singapore
2024 **National Delegate to 73rd Lindau Nobel Laureate Meeting**, Korean Academy of Science and Technology
2024 **NUS Young Fellow**, National University of Singapore
2023 **Young Future Energy Leader**, Khalifa University
2023 **Representative of KAIST, Young Engineers Honor Society**, National Academy of Engineering of Korea
2021 **Talent Award of Korea**, Ministry of Education
2020 **Nobel Ceremony Guest and National Delegate**, Stockholm International Youth Science Seminar (SIYSS)

PRESENTATIONS

4. M.J. Kim, D. Choi, S. Yoo*, **Ultralow-power, stable carbon dioxide sensor for real-time breath monitoring**, *Korean Meeting on Information Display* (Poster), 2025

3. M.J. Kim, J. Kim, S. Yoo*, **Near-planar light outcoupling structure for ultra-efficient organic light-emitting diodes**, *Optics and Photonics Congress* (Oral), 2024
   Best Paper Award

2. M.J. Kim, H. Cho*, **Effective passivation of quasi-2D perovskites enabled by π-conjugated planar molecules**, *7th International Conference on Advanced Electromaterials* (Oral), 2023

1. M.J. Kim, S. Shin, H. Cho*, **Highly luminescent and stable quasi-2D perovskites based on multi-functional asymmetric spacer**, *Spring Meeting of Korea Institute of Metals and Materials* (Poster), 2023
   Best Poster Presentation Award

SKILLS

Language English (fluent, TOEFL iBT: 106), Korean (native)
LaTeX(advanced), MATLAB (advanced), Python (moderate), HTML (moderate)
Simulation LightTools (advanced), ChemOffice (advanced), Lumerical (novice), COMSOL Multiphysics (novice)
Technical Optical and photonic design of optoelectronics, PeLED/OLED fabrication and characterization, Organic synthesis and analysis

REFERENCE

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