MinJae Kim

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Education

Korea Advanced Institute of Science and Technology (KAIST) *Daejeon, Korea*

Undergraduate, Department of Materials Science and Engineering *Feb. 2019 - Present*

- KAIST Presidential Fellowship (2021 - Present), Honor Student (Mar. 2021 - Present)
- Total GPA of 4.23/4.3 (99.3/100), Total acquired credits of 147/136 (including 27 credits from graduate-level coursework)
- Departmental Honor Scholarship (Top 4): 3 times, Dean's List (Top 3%): 5 times
- 2023 Global Leadership Award (Recognition for creativity, challenge, and caring)
- College of Engineering (CoE) Leadership Award (Recognition for research excellence): 2 times
- Served Korean military duty (Mar. 2021 –Sep. 2022)

Research Experience

Integrated Organic Electronics Lab., KAIST *Daejeon, Korea*

Undergraduate researcher (Advisor: Prof. Seunghyup Yoo) *Feb. 2024 –Present*

- Devised and led project on near-planar light outcoupling structure for ultra-efficient organic light-emitting diodes through trans-scale design
  - Received KAIST Undergraduate Research Program (URP) grant
  - Awarded Best Paper Presentation Award at Optics and Photonics Congress 2024
- Conceived and developed ultralow-power and stable wearable pCO_2 sensor for seamless respiratory monitoring

Wellman Center for Photomedicine, Massachusetts General Hospital *Boston, MA*

Research intern (Advisor: Prof. Conor L. Evans) *Jun. 2023 –Aug. 2023*

- Developed multi-functional amphiphilic block copolymer matrices for stretchable optochemical pCO_2 sensors
  - Won 2nd place and People's Choice Award (Top 4) at poster session of Harvard-MIT Summer Institute at MGH

Next-Generation Optoelectronic Nanomaterials Lab., KAIST *Daejeon, Korea*

Undergraduate researcher (Advisor: Prof. Himchan Cho) *Jul. 2022 –Dec. 2023*

- Led project on highly luminescent and stable quasi-2D Dion-Jacobson phase perovskites based on multi-functional asymmetric spacers
  - Received KAIST Undergraduate Research Program (URP) grant
  - Awarded Grand Prix (Top 3) at 2023 Undergraduate Research Program Workshop
  - Awarded Best Poster Presentation Award at 2023 Spring Meeting of Korean Institute of Materials and Metals
- Devised and worked on project on effective passivation of quasi-2D perovskites enabled by π-conjugated planar molecules
  - Delivered oral presentation at 7th International Conference on Advanced Electromaterials

Publication

1. M.J. Kim†, D. Choi†, C. Kang, S. Yoo, **An ultralow-power, stable carbon dioxide sensor for real-time breath monitoring**, *Submitted*

Presentations

2024 **Near-Planar Light Outcoupling Structure for Ultra-Efficient Organic Light-Emitting Diodes**, *Jeju, Korea*
Optics and Photonics Congress 2024, *Oral*

2023 **Effective Passivation of Quasi-2D Perovskites Enabled by π-conjugated Planar Molecules**, *Jeju, Korea*
7th International Conference on Advanced Electromaterials (ICAE 2023), *Oral*

2023 **Intrinsically Stretchable pCO_2 Sensor Enabled by Multi-functional Block Copolymer Matrices**, *Boston, MA*
Harvard-MIT Summer Institute at MGH, *Poster*

2023 **Highly Luminescent and Stable Quasi-2D Perovskites based on Multi-functional Asymmetric Spacer**, *Jeju, Korea*
Spring Meeting of Korean Institute of Metals and Materials, *Poster*

Honors & Awards (Selected)

Scholarships

2023	**Yeonghan Kim Global Leader Scholarship**, KAIST	*Daejeon, Korea*
2023	**Woonhae Scholarship (2023-2024)**, Woonhae Foundation	*Changwon, Korea*
2022	**Dream Supporter Scholarship (2022-2024)**, Global Hansang Dream Foundation	*Ulsan, Korea*
2021	**KAIST Presidential Fellowship (2021-2024)**, KAIST	*Daejeon, Korea*
2019	**National Presidential Science Scholarship (2019-2024)**, Korea Student Aid Foundation	*Seoul, Korea*

Honors and Awards

2024	**National Delegate, 73rd Lindau Nobel Laureate Meeting**, Council for Lindau Nobel Laureate Meetings	*Bavaria, Germany*
2024	**National University of Singapore Young Fellow**, National University of Singapore	*Singapore*
2023	**Young Future Energy Leader**, Khalifa University	*Abu Dhabi, UAE*
2023	**Representative of KAIST, Young Engineers Honor Society**, National Academy of Engineering of Korea	*Seoul, Korea*
2021	**Talent Award of Korea**, Ministry of Education	*Seoul, Korea*
2020	**National Delegate and Nobel Ceremony Guest**, Stockholm International Youth Science Seminar (SIYSS)	*On-line*
2020	**Cadet of Research Officer for National Defense**, Ministry of Science and ICT, Ministry of Defense	*Daejeon, Korea*
2020	**Excellence in Mentorship Award**, Samsung Dreamclass	*Ansan, Korea*

Extracurricular Activities

Young Engineers Honor Society, National Academy of Engineering of Korea — *Seoul, Korea*

2023 President of KAIST chapter, Full member (Registration no. Y34-14) — *Sep. 2020 – Present*

- Directed and organized Junior Engineering Class, where 5+ KAIST undergraduates and graduate students outreach for and benefitted 100+ elementary and middle school students in community annually
- Delivered lectures at Specialty Info Sessions for high school students

KAIST Center for Excellence in Learning and Teaching — *Daejeon, Korea*

Special lecture speaker — *Nov. 2022*

- Delivered special lecture entitled 'Connecting dots in your undergraduate life' at KAIST Tip Talk program
- Lecture video was shared on Youtube and KAIST Learning Management System (KLMS)

Skills

Language	Korean (native), English (fluent, TOEFL iBT Reading 28, Listening 30, Speaking 21, Writing 25)
Programming	LaTeX (advanced), MATLAB (moderate), Python (moderate), HTML (moderate)
Simulation	LightTools (advanced), ChemOffice (advanced), Lumerical (novice), COMSOL (novice)
Technical	Optical and photonic design of optoelectronics, PeLED/OLED fabrication and characterization, Organic synthesis and analysis

References

Seunghyup Yoo, Ph.D.
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