

# MinJae Kim

KAIST, Daehak-ro 291, Yuseong-gu, Daejeon, 34141, South Korea

✉ mj3259@kaist.ac.kr | 🏠 mj3259.github.io | 🌐 MinJae Kim

## 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), Acquired credits: 147/136 (including 27 graduate-level coursework credits)
- Department Honor Scholarship (top 4 in department): 3 times, Dean's List (top 3% in department): 5 times
- 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

- Project title: Flexible and wearable ultralow power pCO<sub>2</sub> sensor for whole-day monitoring
  - Developed a flexible organic-inorganic hybrid optical pCO<sub>2</sub> sensor with ultralow power consumption targeting whole-day monitoring and screening of metabolic and respiratory diseases.

### Wellman Center for Photomedicine, Massachusetts General Hospital

Boston, MA

RESEARCH INTERN (ADVISOR: PROF. CONOR L. EVANS)

Jul. 2023 - Aug. 2023

- Project title: Intrinsically stretchable pCO<sub>2</sub> sensor enabled by multi-functional block copolymer matrices
  - Devised and synthesized novel block copolymer matrices for realization of stretchable pCO<sub>2</sub> sensors with excellent sensing capability and mechanical properties
  - Awarded People's Choice Award 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

- Project title: Development of highly luminescent and stable quasi-2D perovskites based on multi-functional asymmetric spacers
  - Devised and validated geometrically and electronically asymmetric spacer for Dion-Jacobson phase quasi-2D perovskite
  - Granted KAIST Undergraduate Research Program (KRW 5M)
  - Awarded Best Poster Presentation Award at 2023 Spring Meeting of Korean Institute of Materials and Metals (Apr. 2023)
  - Awarded Grand Prix at 2023 Undergraduate Research Program Workshop (Aug. 2023)
- Project title: Effective passivation of quasi-2D perovskites enabled by  $\pi$ -conjugated planar molecules
  - Delivered an oral presentation at 7th International Conference on Advanced Electromaterials (Nov. 2023)

## Presentations

### ORAL

- |      |  |             |
|------|--|-------------|
| 2023 | <b>Effective Passivation of Quasi-2D Perovskites Enabled by <math>\pi</math>-conjugated Planar Molecules,</b><br>7th International Conference on Advanced Electromaterials (ICAE 2023) | Jeju, Korea |
| 2020 | <b>Application of PEDOT:PSS Thin Film Fabricated via Hot-casting as Hole Transport Layer of Perovskite Solar Cell,</b> Stockholm International Youth Science Seminar (SIYSS)           | On-line     |

### POSTER

- |      |  |             |
|------|--|-------------|
| 2023 | <b>Intrinsically Stretchable pCO<sub>2</sub> Sensor Enabled by Multi-functional Block Copolymer Matrices,</b><br>Harvard-MIT Summer Institute at MGH                 | Boston, MA  |
| 2023 | <b>Highly Luminescent and Stable Quasi-2D Perovskites based on Multi-functional Asymmetric Spacer,</b><br>Spring Meeting of Korean Institute of Metals and Materials | Jeju, Korea |

## Patents

- |      |   |                   |       |
|------|---|-------------------|-------|
| 2023 | Passivation agents donating $\pi$ -conjugated electron density, inorganic semiconductors and perovskites including the same, and methods for producing the same | Pending           | Korea |
|      |   | (10-2023-0167999) |       |
| 2023 | Perovskite material including multi-functional asymmetric organic spacer and light-emitting device including the same   | Pending           | Korea |
|      |   | (10-2023-0118990) |       |

## Honors & Awards (Selected)

### SCHOLARSHIPS

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

### HONORS

2024	<b>National Delegate, 73rd Lindau Nobel Laureate Meeting</b> , Council for the Lindau Nobel Laureate Meetings	Bavaria, Germany
2023	<b>Young Future Energy Leader</b> , Khalifa University	Abu Dhabi, UAE
2023	<b>Representative of KAIST, Young Engineers Honor Society</b> , National Academy of Engineering of Korea	Seoul, Korea
2020	<b>National Delegate and Nobel Ceremony Guest</b> , Stockholm International Youth Science Seminar(SIYSS)	On-line
2020	<b>Cadet of Research Officer for National Defense (과학기술전문사관)</b> , Ministry of Science and ICT	Seoul, Korea

### AWARDS

2023	<b>Donggyo Injae Award (동교인재상)</b> , Surim Foundation	Seoul, Korea
2023	<b>Grand Prix, Undergraduate Research Participation (URP) Workshop</b> , KAIST	Daejeon, Korea
2023	<b>Best Poster Presentation Award</b> , 2023 Spring Meeting, Korean Institute of Metals and Materials	Jeju, Korea
2021	<b>Talent Award of Korea (대한민국 인재상)</b> , Ministry of Education	Seoul, Korea
2021	<b>Youth Hero Prize</b> , Korea Scout Association	Seoul, Korea
2020	<b>Excellence in Mentorship Award</b> , Samsung Welfare Foundation	Ansan, Korea

## Extracurricular Activities

### Young Engineers Honor Society, National Academy of Engineering of Korea

Seoul, Korea

2023 REPRESENTATIVE OF KAIST, FULL MEMBER (REGISTRATION NO. Y34-14)

Sep. 2020 – Present

- Served as representative of KAIST (Jan. 2023 - Dec. 2023)
- Hosted Junior Engineering Classes for elementary and middle school students, and 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 a 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)

## References

### Seunghyup Yoo, Ph.D.

PROFESSOR AT KAIST

☎ +82-42-350-3483

✉ syoo.ee@kaist.edu

### Himchan Cho, Ph.D.

ASSISTANT PROFESSOR AT KAIST

☎ +82-42-350-3344

✉ himchan@kaist.ac.kr

### Conor L. Evans, Ph.D.

ASSOCIATE PROFESSOR AT HARVARD MEDICAL SCHOOL

☎ +1-617-726-1089

✉ evans.conor@mgh.harvard.edu

### EunAe Cho, Ph.D.

ASSOCIATE PROFESSOR AT KAIST

☎ +82-42-350-3317

✉ eacho@kaist.ac.kr

### Seungbum Hong, Ph.D.

PROFESSOR AT KAIST

☎ +82-42-350-3324

✉ seungbum@kaist.ac.kr