

MIA(YOUNGJU) SON

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EDUCATION

Ph.D. in Chemical Engineering

May 2029

University of Texas at Austin, TX

- GPA: 3.91/4.0, Relevant Courses: Advanced Thermodynamics, Reaction Kinetics
- Thesis advisor: Wennie Wang, Ph. D.

Master of Science in Chemical Engineering

Mar 2017 - Aug 2019

Seoul National University, Seoul, South Korea

- GPA: 3.70/4.0, Relevant Courses: Semiconductor Device Physics, Applied Computational Chemistry
- Thesis advisor: Taeghwan Hyeon, Ph. D. co-advisor: Jungwon Park, Ph. D.

Bachelor of Science in Chemical and Biological Engineering

Mar 2013 - Feb 2017

Seoul National University, Seoul, South Korea

- GPA: 3.51/4.0, Relevant Courses: Inorganic and Materials Chemistry, Chemical Reaction Engineering

PUBLICATIONS

1. Kim JH, Kim J, Kim BH, Song S, Kang J, Rhee J, Kim D, Chun H, Choi H, Cho H, Kim Y, Jung JW, **Son Y**, Jung J, Park K, Jeon S, Lee M, Han B, Lee WC, Kim D, Hyeon T, Sung J, Park J. Multiphasic size-dependent growth dynamics of nanoparticle ensembles. *Proc Natl Acad Sci U S A*. **2025** Jun 10;122(23)

2. **Son Y**, Kim BH, Choi BK, Luo Z, Kim J, Kim GH, Park SJ, Hyeon T, Mehraeen S, Park J. In Situ Liquid Phase TEM of Nanoparticle Formation and Diffusion in a Phase-Separated Medium. *ACS Appl Mater Interfaces*. **2022** May 25;14(20):22810-22817

In-situ demonstration that the interface between the separated phases plays a central role in nucleating and growing the particles by supplying and reducing precursors. This enhances our understanding of nanomaterials synthesis in a multi-component system

3. Lin M, Wang J, Kim GH, Liu J, Pan L, Lee Y, Oh JW, Jung Y, Seo S, **Son Y**, Lim J, Park J, Hyeon T, Nam JM. One-Pot Heterointerfacial Metamorphosis for Synthesis and Control of Widely Varying Heterostructured Nanoparticles. *J Am Chem Soc*. **2021** Mar 10;143(9):3383-3392

RESEARCH EXPERIENCE

Graduate Research Assistant

Aug 2024 - Present

University of Texas at Austin, TX

- Dedicated to enhance understanding of device physics by computational defect engineering with a focus on the effect of multi-defects on the atomic and electronic structure of materials.

Research Assistant

Aug 2016 - Aug 2019

Seoul National University, Seoul, Korea

- Synthesized and characterized nanoparticles of various properties
- Organized lab-scale semiconductor fabrication processes to produce chip-based liquid TEM cell
- Collaborated with researchers to investigate the atomic scale events in real time by liquid TEM
- Analyzed formation and behavior of silver nanoparticles in a phase-separated medium

TEACHING EXPERIENCE

Teaching assistant (Measurement, Control and Data Analysis Lab) May 2025

University of Texas at Austin, TX

- Supervised safe operation of heat transfer/mixing experiments and assisted with data analysis by Excel

Teaching assistant (Numerical Methods in ChE/Problem solving) Jan 2025 - May 2025

University of Texas at Austin, TX

- Developed interactive MATLAB scripts to visualize the algorithm of numerical methods such as Gaussian elimination, Golden search, and finite difference method
- Conducted weekly recitation sessions to review lectures and cover solutions to exercise problems

Lecturer (Data analysis by Python) Dec 2022 - Jul 2024

Samsung Electronics, Gyeonggi-do, South Korea

- Developed JupyterLab notebooks to familiarize engineers with the fundamentals in coding
- Taught monthly classes on data processing and analysis by Python and various libraries(pandas, scipy)

LEADERSHIP & ACTIVITIES

Graduate Student Safety Committee Aug 2024 - Present

University of Texas at Austin, TX

- Established the peer-to-peer evaluation guide for computational groups to promote office safety
- Designed safety flyers to deliver information on safety and health to the department

WORK EXPERIENCE

Process engineer Aug 2019 - Aug 2024

Samsung Electronics (Gyeonggi-do, South Korea)

- Collaborated with engineers and operators to reduce defects in various Si-based films by controlling precursor feeding rate and optimizing wafer layout
- Executed optimization tests to increase stability and uniformity of batch LPCVD and ALD processes

CERTIFICATES

Engineering Teaching Assistant Certificate *University of Texas at Austin, TX* May 2025

- Completed TA training requirements covering teaching practicum, student surveys of teaching effectiveness and classroom observations.

HONORS AND REWARDS

Cockrell School of Engineering Fellowship *University of Texas at Austin, TX* 2024 - Present

Scholarship for Academic Excellence *Seoul National University* 2013-2016

National Scholarship For Science and Engineering *Korea Student Aid Foundation* 2015