

Hyeongjoon Kim

808 S Michigan Ave, Chicago, IL 60605 | (765) 532-8577 | joonk1214@gmail.com
LinkedIn: <https://www.linkedin.com/in/hyeongjoonkim/> | Website: <https://joonk1214.github.io>

PROFESSIONAL SUMMARY

Process Engineer with combined experience in semiconductor and display process optimization, specializing in dry etch, process integration, and yield improvement. Experienced in SEM, TEM, Ellipsometry, AFM, and Python/JMP/Spotfire-based data analysis to identify root causes and drive robust process improvements across both R&D pathfinding and high-volume manufacturing.

EDUCATION

Purdue University West Lafayette, IN	GPA: 3.89 / 4.00
Master of Science in Materials Engineering	Expected May 2026
Dongguk University Seoul, Republic of Korea	
Bachelor of Science in Energy and Materials Engineering	Aug 2020

PROFESSIONAL EXPERIENCE

Applied Materials Gloucester, Massachusetts	Jul 2025 – Jan 2026
Process Engineer Co-op	
<ul style="list-style-type: none">Developed DOE-based reactive ion etch processes by tuning plasma and ion beam parameters to achieve target etch profilesCharacterized film thickness, uniformity, and etch profiles using Ellipsometry, SEM, and TEM, enabling process optimization and hardware performance evaluationAnalyzed chamber conditions and correlated tool state variations with process performanceDeveloped an automated Python-based TEM etch-profile analysis script, reducing analysis time by 97% and enabling data-driven process optimizationGenerated technical reports and internal documentation for customer demonstrations	
LG Display Paju, Republic of Korea	Jun 2021 – Aug 2024
Process Integration Engineer	
<ul style="list-style-type: none">Conducted root cause and failure analysis using SEM, FIB, TEM, and AFM, supported by Spotfire, JMP, and Minitab-based data analysis, to drive yield improvementsAnalyzed process trends and metrology data (thickness, uniformity, particle levels) through SPC-based monitoring to enhance key unit process performanceValidated new equipment and process conditions for mass production readiness, ensuring process stability, throughput, and reliabilityReduced particle-related defects, refined inspection logic, and collaborated with cross-functional teams to confirm root causes and implement corrective actions, improving product yield	

DS Neolux | Cheonan, Republic of Korea

Quality Engineer	Oct 2020 – May 2021
<ul style="list-style-type: none">Analyzed experimental and field-return data to qualify OLED products and resolve reliability issuesPerformed optical, electrical, and lifetime characterization to identify early failure signaturesOperated thermal evaporators and vacuum systems to conduct device evaluation	

SKILLS

- Process & Manufacturing: DOE, SPC, Root Cause Analysis, Yield and Reliability Improvement, Lithography, Thin-Film Deposition, Dry Etching
- Characterization: SEM, FIB, TEM, AFM, Ellipsometry, XRD
- Data & Software: Python, JMP, Spotfire, Minitab, ImageJ, Quartz PCI, MS Office

PROJECTS

Via Etch Optimization | Applied Materials | SEM, TEM, Ellipsometry, JMP

- Developed via etch processes to achieve target etch profiles for advanced patterning applications
- Evaluated key plasma and process parameters to balance etch profile, rate, and directionality
- Analyzed SEM/TEM/ellipsometry and process log data to optimize etch conditions

TEM Measurement Automation | Applied Materials | TEM, Python, ImageJ, Quartz PCI, JMP

- Automated TEM measurement workflows on IP-controlled images, enabling structured data generation for comparison and trend analysis
- Implemented custom, rule-based measurements to ensure consistent and repeatable results
- Designed the automation to generate annotated TEM images for traceability and outlier detection

Non-Sacrificial Layer Technology Development | LG Display | SEM, FIB, AFM, Spotfire, JMP

- Developed non-sacrificial layer processes to enable enhanced optical sensor functionality
- Reduced glass surface damage by optimizing CVD process temperature, mitigating scratch formation
- Optimized the laser lift-off (LLO) process, including laser source selection, beam profile, and process conditions

Particle Reduction for Yield Improvement | LG Display | FIB, SEM, Spotfire, JMP

- Improved product yield and reliability by identifying and mitigating particle contamination sources
- Conducted root cause analysis of particle generation using FIB/SEM characterization and Spotfire/JMP-based data analysis
- Implemented design and process parameter changes to reduce particle formation during manufacturing

iPhone 14/15 Pro Max Panel Validation | LG Display | FIB, SEM, AFM, TEM, Spotfire, Minitab

- Validated mass production readiness of iPhone display panels, ensuring compatibility and reliability across production stages
- Coordinated with cross-functional teams to align design, process, and reliability requirements during production ramp-up
- Performed first-article inspections, including reliability testing and detailed root-cause analysis, to ensure product quality and process stability

CERTIFICATIONS

• Semiconductor Fabrication 101 Purdue University	Oct 2024
• Six Sigma Green Belt LG Display	Oct 2022
• Semiconductor Process Training Korea Electronics Technology Institute	Aug 2020