

**Kai Shin**  
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**EDUCATION**

**Johns Hopkins University**

Masters of Materials Engineering, Nanomaterials Concentration, December 2017, GPA 3.9

**University of North Carolina at Chapel Hill**

B.S., Applied Sciences - Materials Science, May 2015, GPA 3.4

Minor - Entrepreneurship, Second Minor - Chemistry

**HONORS**

NGMS Trade Secret (3x, 2017-2019), Honor Roll of Innovators (NGMS, 2016), 2015 Highest Honors Graduate (UNC), 2015 Carolina Research Scholar, 2014 Dunlevie Undergraduate Research Award, 2014 Bay Area Innovation Fellow, 2011 Northrop Grumman Engineering Scholar

**CURRENT ROLE**

**Operations Program Engineer III, Surface Mount Technology**

*NGMS 7/2019-present*

Supported an advanced radar product line as the principal operations coordinator for the Surface Mount Technology manufacturing cell. Provided a functional link between program management and the SMT manufacturing cell to coordinate priorities across 23 parts and thousands of LRMs. Drove program improvements as an approving entity for the program change control board and interfaced weekly with program leadership to ensure alignment between various manufacturing cells.

**RELEVANT PREVIOUS EXPERIENCE**

**Process Integration Engineer II, Compound Semi and Emerging Tech**

*NGMS 3/2017-present*

Oversaw lots for multiple configured technology flows for both production and R&D programs. Instrumental in investigating root cause of severe yield loss and applying process changes to recover yield for major GaAs production program. Drove drastic improvement in data capture and analysis methods through collaboration with process engineers in critical modules and QA Engineers. Developed new growth processes for emerging Carbon Nanotube technologies. Developed and implemented new image analysis algorithms in MATLAB, designed experiments that drove improvements in critical wet etch processes, conducted SEM inspection and analysis, analyzed test data in JMP, and architected the group SharePoint site

**PDP Product Architecture Engineer I, Advanced Concepts and Technologies**

*NGMS, 10/2016 - 3/2017*

Supported the Radar Product Architect to scout new technologies and coordinate with potential industry partners to drive the sector roadmap forward. Enhanced automation of backend processes and developed grassroots innovation challenges to continue engaging new talent

**PDP Project Specialist Engineer I, International Business Development**

*NGMS, 1/2016 - 10/2016*

Performed pipeline analysis, drafted the AC4ISR 2016 Divisional LRSP, instituted process reforms to optimize sector-wide usage of target database software, developed SharePoint for the international BD organization, and completed travel assignment in Japan supporting partnership/customer engagements and exploring best-in-class technologies

**PDP Materials and Processes Engineer I, Hardware Manufacturing**

*NGMS, 7/2015 - 1/2016*

Performed material characterization, failure analysis and metrology. Techniques included rheological measurements, mechanical testing, thermal conductivity measurements, electrical testing (4-pt probe testing, IPCE measurements, IV curves), optical microscopy, hardness measurements, and IR spectroscopy. Constructed a toroid magnetic hysteresis meter and programmed in LabVIEW

**Undergraduate Research Assistant, Nano-Optical Materials**

*UNC EFRC, 8/2012 - 5/2015*

Designed and constructed instrumentation controlled and interfaced primarily through LabVIEW. Honors Thesis was to create a multi-method solar cell characterization machine with a focus on convenience, flexibility, and rapid data acquisition. Measurements included IPCE % across a broad spectrum and generation of I-V curves. Other projects include developing an automatic dip coater and a dynamic thin film flexed conductivity measurement apparatus.

**Operations Intern, Future Captures and Internal Engagement**

*Sungevity, 8/2012 - 5/2015*

Funded through the UNC Bay Area Innovation Fellowship, my internship focused on analyzing project costs to optimize job selection and resource allocation, liaised with local municipalities, accompanied technicians to assess electrical environments and solar access at job site, and developed foundation for the structure of a future internship programs. Also visited other Bay Area startups and entrepreneurs through structured tours and interviews as part of the fellowship programming.

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**Astronomy Educator, Fulldome Theater Technician** *Morehead Planetarium and Science Center, UNC, 7/2011 - 5/2015*

Led public and private astronomy shows in the immersive fulldome theater which enabled the dynamic exploration of nearly the entire known universe. Supported event management and theater operations as well as trained new student employees

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**LEADERSHIP  
EXPERIENCE**

**InventNG Hackathon Series Co-Chair**

*NGMS, 3/2016 - 5/2018*

Co-chair of the sector-wide InventNG Hackathon series which connected SME's with innovators around the sector to unlock more than \$100K in rapid innovation funds. Hosted events in Additive manufacturing (2016), Deep Learning (2017) and Model Based Engineering (2018) in collaboration with the Innovation Ecosystem and the Tech Underground.

**NGMS - Chair, Professional Development Program CoP**

*NGMS,*

*8/2016-6/2017*

Chaired PDP CoP and served as primary link between PDP and Talent Management. Activities included overseeing sector-wide events for interns and PDP's, including the "Meet Kathy Warden" event, the 2016 Summer Speaker Series and Connect1NG's 2016 Early Career Orientation Program (ECOP).

**UNC - Chancellors Student Innovation Team (CSIT)**

*UNC, 9/2014*

*- 5/2015*

Discussed issues relating to the innovation and entrepreneurship landscape at UNC, planned events, and developed recommendations for the chancellor's office

**UNC - MakNet (Maker Network) Founder/President**

*UNC 9/2014-*

*4/2015*

Enabled realization of new makerspace facilities on campus. Raised over \$8,000 for MakNet operations for the 2015-2016 year. Sat on Creatorspace Executive Committee with distinguished faculty to develop a sustainable funding model, plan programming, and hire full time staff

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**PUBLICATIONS  
AND  
PRESENTATIONS**

- Addressing 0.25 um T-Gate Lithography Defects through Data Fit Model Analysis, **CS ManTech, 2019**
- A Materials Model for Operational Efficiency, **NGMS Leadership Club FORUM, 2019**
- GateVision: Automating Image Analysis To Evaluate Quality of 0.25 um Lithography Structures, **NGMS Materials Forum Conference, 2018**
- Addressing Defective 0.25 um T-Gate Lithography Structure Through DOE Analysis, **NGMS Materials Forum, 2018**
- InventNG: Deep Learning, **NGMS Symposium, 2017**
- Impactful Solutions through Organized Rapid Innovation, **NGMS Symposium, 2016**
- Demystifying the Digital Transformation, **NGMS Digital Transformation FORUM, 2016**
- Solar Automatic Multimeter (SAM), **UNC Honors Thesis, 2015**
- Student-Library Collaboration to Build Makerspaces, **AcadeMAKE, 2015**
- Lighting the Future: UNC Solar Fuels Research, **Carolina Scientific 2013**
- Back to My Roots: Travel in South Korea, **Carolina Passport 2013**
- Volcanic Geology Poster, **ACC Meeting of the Minds Research Symposium, 2012**