Myungjoon Kim — Curriculum Vitae

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Date of birth : 30th Apr. 1990

Education

○ **Korea Advanced Institute of Science and Technology (KAIST)** **Daejeon, Korea**
Ph.D. , Materials Science and Engineering *Sep 2018 - Feb 2023*

○ **Korea Advanced Institute of Science and Technology (KAIST)** **Daejeon, Korea**
M.S., Materials Science and Engineering *Mar 2015 - Feb 2017*

○ **Korea Advanced Institute of Science and Technology (KAIST)** **Daejeon, Korea**
B.S., Materials Science and Engineering, Computer Science (Double major) *Feb 2008- Feb 2015*
*military service as a Korean Augmentation To the United States Army (KATUSA) from Jun 2010 to Mar 2012

○ **Hansung Science High School** **Seoul, Korea**
Graduated one year early *Mar 2006 - Feb 2008*

Research Interests

○ Computational inverse design of nanophotonic devices
○ Physics-informed deep learning
○ Fundamental limits of electromagnetic responses

Research Experience

○ **Computational Science Research Center, KIST** Jan 2018 – Aug 2018
Research Intern (Advisor : Dr. Donghun Kim) Seoul, Korea
- Develop deep learning models for predicting adsorption energy of catalysis

○ **Artificial Intelligence Research Institute** Jun 2017 – Sep 2017
Research Intern Pangyo, Korea
- Implemented deep image clustering and applied it to the video summarization and unknown faces recognition

○ **Interactive Computing Lab, KAIST** Oct 2014 – Feb 2015
Research Intern (Advisor : Prof. Uichin Lee) Daejeon, Korea
- Participated in projects on detecting capture moment and correcting device orientation of mobile phone

Teaching Experience

- **KAIST IT Academy** Daejeon, Korea
Instructor
· *Introduction to Python Programming* 2019 – 2020
· *Introduction to Matlab Programming* 2018

- **Department of Materials Science and Engineering, KAIST** Daejeon, Korea
Teaching Assistant
· *Electrodynamics and its applications for MSE* 2020 Spring
· *Circuits and Electronics for Materials Science and Engineering* 2016 Fall

Publications

- N Kim, **M Kim**, J Jung, T Chang, S Jeon, J Shin*, "Highly angle-sensitive and efficient optical metasurfaces with broken mirror symmetry", Nanophotonics, *in press*, (2023)
- A Baucour, **M Kim**, J Shin*, "Data-driven concurrent nanostructure optimization based on conditional generative adversarial networks", Nanophotonics, 11, 2865, (2022)
- SH Nam†, **M Kim**†, N Kim†, D Cho, M Choi, JH Park, J Shin*, S Jeon*, "Photolithographic realization of target nanostructures in 3D space by inverse design of phase modulation", Science Advances, 8, abm6310, (2022).
- S Hong*, CH Liow, JM Yuk, HR Byon, Y Yang, EA Cho, J Yeom, G Park, H Kang, S Kim, Y Shim, M Na, C Jeong, G Hwang, H Kim, H Kim, S Eom, S Cho, H Jun, Y Lee, A Baucour, K Bang, **M Kim**, S Yun, J Ryu, Y Han, A Jetybayeva, P-P Choi, J C Agar, S V Kalinin, P W Voorhees, P Littlewood, H M Lee, "Reducing time to discovery: materials and molecular modeling, imaging, informatics, and integration", ACS Nano, 15, 3971, (2021)
- N Kim, T Chang, **M Kim**, M Heo, A Baucour, J Jung, J Shin*, "Spectrally sharp metasurfaces for wide-angle high extinction of green lasers", Optics express, 28, 22121, (2020)
- **M Kim**†, BC Yeo†, Y Park, HM Lee, SS Han*, D Kim*, "Artificial Intelligence to Accelerate the Discovery of N2 Electroreduction Catalysts", Chemistry of Materials, 32, 709, (2020)
- H Kim, **M Kim**, T Chang, A Baucour, S Jeon, N Kim, H-J Choi, H Lee, and J Shin*, "Bright and vivid plasmonic color filters having dual resonance modes with proper orthogonality", Optics Express, 26, 64, (2018)
- J Oh, J Kim, **M Kim**, W Choi, S Lee, U Lee*, "Understanding Mobile Document Capture and Correcting Orientation Errors", International Journal of Human-Computer Studies, 104, 64, (2017)

International Conferences and Presentations

- **M Kim**, N Kim, J Shin, "Concurrent Inverse Design of Structured Light and Metasurface for Nanopatterning Process ", Frontier in Optics (2022)
- A Baucour, J Shin, **M Kim**, G Park, DS Hong, "Conditional generative adversarial networks for realistic metamaterial simulations", International Meeting on Information Display (2020)
- J Shin, **M Kim**, A Baucour, S Jeon, "Optical Metasurface Design Optimization Assisted by Artificial Neural Networks", Advanced Electromagnetics Symposium (2017)

Technical Skills

- **Programming Languages:** Python (advanced), Julia (intermediate), MATLAB (intermediate)
- **Libraries:** PyTorch (advanced), JAX (intermediate)
- **Simulation Software Skills:** Ansys Lumerical FDTD (advanced), COMSOL Multiphysics (intermediate), S4 (intermediate)

Reference

- **Jonghwa Shin**, Associate professor (Ph. D. Supervisor, qubit@kaist.ac.kr)
  Department of Materials Science and Engineering, KAIST
- **Haejun Chung**, Assistant professor (haejun@hanyang.ac.kr)
  Electronic Engineering, Department of Artificial Intelligence, Hanyang University
- **Donghun Kim**, Senior research scientist (donghun@kist.re.kr)
  Computational Science Research Center, KIST