Young Jae Kim

Mechanical Engineering Ph.D. student

P: (+1) 919-672-0941

E: kootng@email.com / ykim58@ncsu.edu

A: 1110, Carlton Ave, Raleigh, NC 27606

LinkedIn: linkedin.com/in/young-jae-kim-024429217

Web: https://sites.google.com/view/about-young-jae-kim/home

Education

Ph.D.
Aug 2022 -

North Carolina State University
Advisor: Arun K. Kota
Department of Mechanical and Aerospace Engineering

Master of Science
Mar. 2020 – Feb. 2022

Sogang University
Advisor: Bong Geun Chung
Department of Mechanical Engineering

Bachelor of Science
Mar. 2014 – Feb. 2020

Sogang University
Advisor: Bong Geun Chung
Department of Mechanical Engineering

Publications

Prem Kantam, Vignesh K. Manivasagam, Tarun Kumar Jammu, Roberta Maia Sabino, Sravanthi Vallabhuneni, **Young Jae Kim**, Arun K. Kota,* and Ketul C. Popat*. "Interaction of Blood and Bacteria with Slippery Hydrophilic Surfaces", Adv. Mater. Interfaces, 11, 2300564 (2023)

Sang Ik Lee†, Yoon Young Choi†, Seong Goo Kang, Tae Hyeon Kim, Ji Wook Choi, **Young Jae Kim**, Tae-Hyung Kim, Taewook Kang, Bong Geun Chung*. "3D multicellular tumor spheroids in a microfluidic droplet system for investigation of drug resistance", Polymers, 14, 3752 (2022)

Young Jae Kim†, Jae Hyun Lim†, Jong Min Lee†, Ji Wook Choi, Hyung Woo Choi, Won Ho Seo, Kyoung G. Lee, Seok Jae Lee, Bong Geun Chung*. "CuS/rGO-PEG nanocomposites for photothermal bonding of PMMA-based plastic Lab-on-a-Chip", Nanomaterials, 11, 176 (2021)

Ji Wook Choi†, **Young Jae Kim**†, Jong Min Lee, Jin-Ha Choi, Jeong-Woo Choi, Bong Geun Chung*. "Droplet-based synthesis of homogeneous gold nanoparticles for enhancing HRP-based ELISA signals", BioChip Journal, 14(3), 298-307 (2020)

Research Experience

Research Assistant
- Kota Research Group
2022 – Present

North Carolina State University
Department of Mechanical and Aerospace Engineering

- Participated in high wetting resistance non-woven research.
- Organizing the super slippery surface for blood and bacteria
- Optimizing the superhydrophobic and oleophilic surface of corncob

Research Assistant
- BioNano Technology Lab
2020 – 2022

Sogang University
Department of Mechanical Engineering

- Participated in Lab-on-a-chip experiments, sensor PCB optimization, python coding, and COMSOL simulation.
- Collaborate with research professors, Ph. D. students, M.S. students and undergraduate research students.

Undergraduate Research Assistant - BioNano Technology Lab
2019 – 2020

Sogang University
Department of Mechanical Engineering

- Continued the research of undergraduate capstone design project from 2019 to 2021.
- Assistant to Professor Bong Geun Chung, conducting module chip bonding project.

Skills

- **Experiments skills**: Fabrication of PDMS Microfluidic devices, NIR laser, Fluorescence microscope, 3D printer
- **Computer aided Design/Engineering skills**: AutoCAD, Inventor, 3D Max, COMSOL
- **Others computer skills**: Python, Raspberry Pi OS

Fellowships, Awards, and Honors

- 2021 International Biochip Conference and Exhibition poster presentation award, Vivaldi Park, Korea (2021)
- Nano Convergence Conference 2021 poster presentation award, Gwangju-si, Korea (2021)
- Sogang University Mechanical Engineering Academic festival presentation research award, Sogang University, Korea (Nov. 2020)
- International Thesis Scholarship, Sogang University, Korea (2020)

Leadership and other activities

Graduate Teaching Assistant | North Carolina State University, Raleigh, NC

- Control Lab (Fall 2022)
- Designed homework and experiments for graduate-level courses of control systems.

Graduate Teaching Assistant | Sogang University, Seoul, Korea

- Model Design Production (2020 Spring, 2020 Fall), Sensor Engineering (2021 Spring)
- Supervised the lectures and assigned the projects, mentored the undergraduate to participate in sensor production.

Presentations

"21-257: Understanding the Influence of Molecular Ordering on Wetting Resistance" | 2023
RISE® 2023 Conference, poster presentation

"Droplet-based Synthesis of Homogeneous Gold Nanoparticles for Enhancing HRP-based ELISA Signals" | 2021
Nano Convergence Conference 2021, poster presentation

"Microfluidic droplet platform for generating homogeneous gold nanomaterials" | 2021
The 60th Winter Annual Conference of the Korean Vacuum Society, oral presentation

"Non-contact photothermal bonding of the plastic chips" | 2021
2021 Spring International Biochip Conference and Exhibition, poster presentation

"Photothermal bonding of PMMA-based lab-on-a-chip using CuS/rGO-PEG nanocomposites" | 2021
NANO KOREA 2021 The 19th International Symposium & Exhibition, poster presentation

"CuS/rGO-PEG Nanocomposites-based photothermal bonding of PMMA Lab-on-a-chip devices" | 2021
Nature Conference Bio-Inspired Nanomaterials On/Off-line Hybrid, poster presentation