# Myung Chul Kim

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## Education

**Stanford University**, PhD in Mechanical Engineering — Sept. 2023 – Present
- Advisor: Wei Cai
- Research Area: Molecular Dynamics, Statistical Mechanics, Polymer Science

**KAIST**, BS in Mechanical Engineering and Electrical Engineering – Double Major — Mar. 2019 – Aug. 2023

**Georgia Institute of Technology**, Exchange Program in Mechanical Engineering — Jan. 2022 – Dec. 2022

## Research Experience

**PhD Student**, Stanford University – Stanford, CA — Sept. 2023 – May 2029
- Development of importance sampling algorithm for accelerated Monte Carlo simulation using neural network.
- Utilization of machine learning interatomic potential (i.e., MLIP) for large scale molecular dynamics simulations.
- Modeling of polymer networks (e.g., fibrin network of blood clots) and investigate mechanical properties.

**Research Assistant**, Georgia Institute of Technology – Atlanta, GA — Jan. 2022 – Dec. 2022
- Conceptualization, design, fabrication, and testing of a soft-electronic stretchable pressure sensor.
- Design and manufacturing of a 3D printed goggle for diabetic retinopathy detection.
- Development and fabrication of an automatic fit-adjustable smart filtering mask.

## Publications

**Accelerating Monte Carlo Simulation of Rare Events by Importance Sampling using Neural Network** — In Preparation
***Myung Chul Kim***, Wei Cai

**Smart Filtering Facepiece Respirator with Self-Adaptive Fit and Wireless Humidity Monitoring** — Mar. 2025
Kangkyu Kwon, Yoon Jae Lee, Yeongju Jung, Ira Soltis, Yewon Na, Lissette Romero, ***Myung Chul Kim***, Nathan Rodeheaver, Hodam Kim, Chaewon Lee, Seung-Hwan Ko, Jinwoo Lee, Woon-Hong Yeo
10.1016/j.biomaterials.2024.122866

**Stretchable Wearable Wireless Bioelectronics Using All Printed Pressure Sensors and Strain Gauges** — Oct. 2024
Nathan Zavanelli, Yoon Jae Lee, ***Myung Chul Kim***, Allison Bateman, Matthew Guess, Hyeonseok Kim, Dinesh K. Patel, Woon-Hong Yeo
10.1002/admt.202400998

**Advances in Electrochemical Sensors for Detecting Analytes in Biofluids** — Mar. 2023
Jimin Lee, ***Myung Chul Kim***, Ira Soltis, Sung Hoon Lee, Woon-Hong Yeo
10.1002/adsr.202200088

## Conferences

**DAMOP 2025**, The 56th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics - Portland, OR — June 2025

- Accelerating Monte Carlo Simulation of Rare Events by Importance Sampling using Neural Network

**Gordon Research Conference**, Multifunctional Materials and Structures - Ventura, CA Sep. 2022

- Stretchable Pressure Sensor using Inter-Digitated Serpentine Structure

## Awards

**James D. Plummer Graduate Fellowship**, Stanford University Sept. 2023 – Aug. 2024

**Global Leadership Award**, KAIST Mar. 2023

**National Science & Technology Scholarship**, Korea Ministry of Science and ICT Mar. 2019 – Aug. 2023

**Open Innovation Challenge Award**, Korean Society of Mechanical Engineers Oct. 2022

**President's Undergraduate Research Award**, Georgia Institute of Technology Aug. 2022

**Academic Excellence Scholarship**, Guwon Scholarship Foundation May 2021

## Teaching Experience

**Teaching Assistant**, Stanford University – Stanford, CA Jan. 2025 – Mar. 2025

- Introduction to Statistical Mechanics (ME 346A): Provided problem session lectures, held office hours, graded assignments and exams, and developed Python programs to visualize numerical simulations for students.

## Technologies

**Languages:** Python, C, MATLAB

**Technologies:** Solidworks, Altium, FEniCS