Youngdo Kim

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RESEARCH INTERESTS

- Biomedical engineering
- Microfluidics
- Digital holographic microscopy
- Particle tracking velocimetry
- Physics-driven neural network
- Image classification

DEGREE & EDUCATION

B.S. IN MECHANICAL ENGINEERING **Feb 2019 - Present**
Pohang University of Science and Technology (POSTECH), Pohang, Republic of Korea
Current GPA : 3.90 / 4.3 , Major GPA : 4.05 / 4.3

HIGH SCHOOL DIPLOMA **Mar 2016 - Feb 2019**
Daegu Science High School (DSHS), Daegu, Republic of Korea

RESEARCH EXPERIENCE

UNDERGRADUATE RESEARCHER **Jul 2024 – Present**
Future Fluid and Biomimetics Laboratory (PI: Prof. Sang Joon Lee), POSTECH, Pohang, Republic of Korea

- Physics-driven neural network based 3D morphology recovery of microparticles from a single shot digital hologram

UNDERGRADUATE RESEARCHER **Jul 2020 – Dec 2022**
Future Fluid and Biomimetics Laboratory (PI: Prof. Sang Joon Lee), POSTECH, Pohang, Republic of Korea

- AI-based analysis of 3D translational and rotational dynamics on red blood cells using a digital in-line holographic microscopy
- AI-based orientation analysis of red blood cells using digital holographic microscopy
- Smartphone-based holographic monitoring of polydisperse suspended particulate matter concentrations
- Acceleration in the settling velocity of airborne particulate matter on hairy plant leaves
- Development of an efficient condensation surface using liquid-infused surface(LIS) in a solar desalination system

RESEARCH INTERN **Mar 2017 - Feb 2018**
Fluid and Interface Laboratory (PI: Prof. Hyoungsoo Kim), KAIST, Daejeon, Republic of Korea

- Conceptualization and analysis of worthington jet dynamics in oblique bath

PUBLICATIONS

JOURNAL PUBLICATIONS

Notes: # indicates equally contributing first authors. * indicates the corresponding author(s).

1. **Y. Kim#**, J. Kim#, Y. Seo, S. Lee*, AI-based analysis of 3D position and orientation of red blood cells using digital in-line holographic microscopy, *Biosensors and Bioelectronics* **223**, 115232 (2023)
2. J. Kim, J Kim, **Y. Kim**, T. Go, S. Lee*, Acceleration in the settling velocity of airborne particulate matter on hairy plant leaves, *Journal of Environmental Management* **332**, 117313 (2023)
3. J. Kim, **Y. Kim**, K. Howard, S. Lee*, Smartphone-based holographic monitoring of polydisperse suspended particulate matter concentrations, *Scientific reports* **12**, 22609 (2022)
4. Y. Lee#, S. Shin#, G. Choi, H. Jeon, **Y. Kim**, H. Kim*, Symmetry breaking of Worthington jets by gradients in liquid pool depth, *Physics of Fluids* **32**, 112104 (2020)
5. J. Kim, **Y. Kim**, K. Howard, S. Lee*, AI-based analysis of 3D translational and rotational dynamics of red blood cells using a digital in-line holographic microscopy, under review (2024)

CONFERENCE PROCEEDINGS & PRESENTATIONS

Y. Kim, S. Jee, Analysis of 3D orientation of red blood cells using digital in-line holographic microscopy, The 12th National Congress of Fluids Engineering (NCFE), Changwon, South Korea, (2022) -poster

AWARDS & HONORS

- Mechanical Engineering Student Award, POSTECH, 2022
- Outstanding Capstone Design Award, POSTECH, 2022
- Excellence Paper Award, The 12th National Congress of Fluids Engineering, 2022
- The National Scholarship for Science and Engineering, Fall 2021 – Present
- Jigok Scholarship, POSTECH, 2019-2021

OTHER EXPERIENCE

STUDENT MENTOR PROGRAM **Feb 2020 - Jun 2020**
POSTECH Mechanical Engineering Mentor & Mentee Program

- Teaching undergraduate mentees solid mechanics

STUDENT MENTOR PROGRAM **Feb 2022 - Jun 2022**
POSTECH Mechanical Engineering Mentor & Mentee Program

- Teaching undergraduate mentees solid mechanics

MILITARY SERVICE **Dec 2022 – Jun 2024**
Korea Army, Republic of Korea

- Landmine removal operations and explosive handling
- Attending military AI competition 2023, Ministry of National Defense