

# Kyung Chul Lee

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## INTEREST

Computational imaging and optics, Fourier ptychographic microscopy, Lensless camera, Machine-learning for bio-medical imaging

## EDUCATION

March 2019 - Present	Integrated MS/Ph.D. Student in School of Electrical & Electronic Engineering, Yonsei University Advisor: Prof. Seung Ah Lee
March 2011 - August 2018	Bachelor's Degree in School of Electrical & Electronic Engineering, Yonsei University

## PEER-REVIEWED PUBLICATION

- Lee, K. C., Lee, K., Jung, J., Lee, S. H., Kim, D., & Lee, S. A. (2021). A Smartphone-Based Fourier Ptychographic Microscope Using the Display Screen for Illumination. *ACS Photonics*, 8(5), 1307-1315.

## CONFERENCE PRESENTATIONS

- **Kyung Chul Lee**, Junghyun Bae, Nakkyu Baek, Jaewoo Jung, Wook Park, Seung Ah Lee, Design and High-Throughput Fabrication of Custom Phase Mask for Lensless Camera, Photonics West, 2022 (Oral)
- Kyungwon Lee, **Kyung Chul Lee**, Jaewoo Jung and Seung Ah Lee, Miniaturized System for Live-Cell Imaging Based on Fourier Ptychographic Microscopy, Optics and Photonics Congress 2021 (Poster)
- Changyoon Yi, **Kyung Chul Lee** and Seung Ah Lee, Spatiotemporal Correlation Function for Dynamic Speckle Imaging Using Rolling Shutter Image Sensors, Optics and Photonics Congress 2021 (Poster)
- **Kyung Chul Lee**, Kyungwon Lee, Jaewoo Jung, Se Hee Lee, Seung Ah Lee, Fourier ptychographic microscopy on a smartphone: high-resolution, wide-field imaging using screen illumination, Photonics West, 2021 (Oral)
- **Kyung Chul Lee**, Kyungwon Lee, Jaewoo Jung, Se Hee Lee, Seung Ah Lee, Compact and Low-cost Fourier Ptychographic Microscopy for Wide-field and High-resolution Imaging of Cell Screening, KSM Annual Fall Conference, 2020 (Poster, **Best Poster Presentation Award**)

- Changyoon Yi, **Kyung Chul Lee**, Seung Ah Lee, Spatiotemporal Laser Speckle Contrast Imaging Using Rolling Shutter Image Sensor, OSK ABC, 2020 (Poster, **Best Poster Presentation Award**)
- Tae Young Kim, **Kyung Chul Lee**, Kyungwon Lee, Nak Kyu Baek, Seung Ah Lee, *High-Speed Lensless Eye Tracker for Microsaccade Measurement*, IEEE/IEIE ICCE-ASIA, 2020 (Oral)
- **Kyung Chul Lee**, Se Hee Lee, Jaewoo Jung, Kyungwon Lee, Seung Ah Lee, Wide-field, High-resolution Computational Microscopy on a Smartphone, IEEE/IEIE ICCE-ASIA, 2020 (Oral)
- Ha Young Park, Hye Ju Cho, Yong Sik Sim, So Yeon Lee, **Kyung Chul Lee**, Hyeon Chang Kim, *Relationship Between Depression and Spouse Support: Analysis of Gender Difference in the Effects of Social Network Connectivity*, Korea Home Management Association, 2019 (Oral)

## **EXTRACURRICULAR ACTIVITY**

December 2019 - **Participant, AI Challenge Competitions**  
November 2020

- Participated as a member of *Team Next*
- 1<sup>st</sup> Place for SNUH Medical AI Challenge (MAIC) 2020 (Top 1%)
  - Theme: intraoperative hypertension prediction using vital DB
  - Hosted by Seoul National University Hospital
- 2<sup>nd</sup> Place for Korea Health Datathon (KHD) 2020
  - Theme: sinusitis prediction using sinus X-ray data
  - Hosted by Konyang University Hospital and National Cancer Center
- 2<sup>nd</sup> Place for Digital Health Hackathon (DHH) 2020
  - Theme: drug effectiveness prediction from vital signal
  - Hosted by Samsung Advanced Institute for Health Sciences & Technology and Digital Healthcare Partners
- 2<sup>nd</sup> Place for Healthcare AI Learning Platform (HeLP) AI 2019
  - Theme: critical event prediction from vital signal at NICU
  - Hosted by Asan Medical Center and Ministry of Health and Welfare
- 9<sup>th</sup> Place for Konyang Health Datathon (KHD) 2019
  - Theme: retinopathy detection from fundus photography
  - Hosted by Konyang University Hospital and National Cancer Center
  - Kick-off project of our team

August 2019 **Presenter, Engineering Camp for High School Students**

- Gave a talk on a career of studying electrical & electronic engineering with professors in Yonsei University and mentored high school students.
- Hosted by college of engineering, Yonsei University

December 2018 **Presenter, 2018 Engineering Education Festa**

- Presented the capstone design project for social contribution, “Smart medical band for restricting and releasing”
- Chosen for the best poster and awarded for the Korea Engineering Deans Council Award
- Patent registered (Registered No. 10-2018-0087613)

January 2018

***Participant, Silicon Valley Start-up Program***

- Worked on a team project called “Pet-it” in San Jose State University and experienced the entrepreneurship culture in Silicon Valley
- Chosen for the best idea and awarded for the grand prize
- Hosted and financial supported by national Innovation center for engineering education

March 2015 -  
December 2017

***Editor, The Yonsei Annals***

- Managed over 4000 subscriptions of the official English news publication of Yonsei University
- Directed weekly production meetings to determine monthly content and organized events for external cooperation
- Revised over 80 articles on topics including an interview with highly professional experts in various field.
- Maintained alumni network of 500+ individuals for annual events and funding

March 2015 -  
June 2018

***Mentor, Multicultural Study Group***

- Volunteered as a mentor for elementary students from multicultural family, focusing on STEM education with interactive science materials that encouraged proactive participation from students

August 2012 -  
December 2012

***Intern, Samsung Group***

- Organized the training program for senior researcher and manager of Samsung group and supported the training course.

## **RECOGNITION**

February 2022

Silver Prize in Samsung Humantech Paper Awards  
Samsung Electronics

December 2020

Bronze Prize in Samsung EM Best Paper Awards  
Samsung Electro-Mechanics

November 2020

Grand Prize (1<sup>st</sup> place) in MAIC 2020  
Seoul National University Hospital

November 2020

Best Poster Presentation Awards  
Korea Society of Microscopy

October 2020

Excellence Award (2<sup>nd</sup> place) in KHD 2020

Naver Cloud Platform and Kunyang University Hospital

September 2020	Grand Prize (2 <sup>nd</sup> place) in DHH 2020 Samsung Advanced Institute for Health Sciences & Technology and Digital Healthcare Partners
April 2020	Excellence Award (2 <sup>nd</sup> place) in HeLP 2019 Asan Medical Center and Ministry of Health and Welfare
December 2018	Korea Engineering Deans Council Award, 2018 Engineering Education Festa
January 2018	Entrepreneurship Award (Grand Prize), San Jose State University
March 2017 - December 2017	Scholar of the Leadership Enrichment, Korea Electric Association
September 2016 - December 2016	Scholar of the National Scholarship for Science and Engineering, Korea Student Aid Foundation (KOSAF)
March 2016 - June 2017	Scholar of the Peace, Yonsei University

## **TEACHING**

- Teaching Assistant: Electricity and Magnetism(F'19), Basic Circuit Theory(S'19)
- Mentored 10 undergraduate researcher and co-advised undergraduate thesis at Yonsei University themed below
  - *A Smartphone-based Fourier Ptychographic Microscope Using Ambient Illumination* (2020)
  - *Sub-micron & Wide-field Microscopy Using a Smartphone with OLED Screen* (2019)
  - *Spatial and Temporal Contrast Imaging for Blood Flow Visualization* (2019)
  - *High-speed Imaging Using Diffuser-based Lensless Camera* (2019)

## **REFERENCE**

Available upon request.