

# Seungjae Han

Last update : 2023 May

✉ jay0118@kaist.ac.kr  
🏠 [stevejayh.github.io](https://github.com/stevejayh)

👤 SteveJayH  
🔗 [Google Scholar](https://scholar.google.com/citations?user=SteveJayH)

**Keywords**    Neuroengineering  
Computational imaging  
Computer vision  
Optimization  
Signal processing

## EDUCATION

2020-Now    **KAIST**  
Ph.D. Candidate in School of Electrical Engineering  
Advisor : Young-Gyu Yoon

2017-20    **Yonsei University**  
Bachelor of Science in School of Integrated Technology  
Advisor : Jiwon Seo

## PUBLICATIONS

\* co-first authors, \*\* co-corresponding authors

- 2023    **[In vivo whole-brain imaging of zebrafish larvae using three-dimensional fluorescence microscopy](#)**  
Eun-Seo Cho, [Seungjae Han](#), Gyuri Kim, Minh Eom, Kang-Han Lee, Cheo-Hee Kim, Young-Gyu Yoon  
*Journal of Visualized Experiments*
- [Robust and Efficient Alignment of Calcium Imaging Data through Simultaneous Low Rank and Sparse Decomposition](#)**  
Junmo Cho\*, [Seungjae Han](#)\*, Eun-Seo Cho, Kijung Shin, Young-Gyu Yoon  
*IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*
- 2022    **[IMPASTO: Multiplexed cyclic imaging without signal removal via self-supervised neural unmixing](#)**  
Hyunwoo Kim\*, Seoungbin Bae\*, Junmo Cho, Hyeon Nam, Junyoung Seo, [Seungjae Han](#), Euiin Yi, Eunsu Kim, Young-Gyu Yoon\*\*, Jae-Byum Chang\*\*  
*Preprint*
- [Statistically unbiased prediction enables accurate denoising of voltage imaging data](#)**  
Minho Eom\*, [Seungjae Han](#)\*, Gyuri Kim, Eun-Seo Cho, Jueun Sim, Pojeong Park, Kang-Han Lee, Seonghoon Kim, Márton Rózsa, Karel Svoboda, Myunghwan Choi, Cheol-Hee Kim, Adam Cohen, Jae-Byum Chang, Young-Gyu Yoon  
*Preprint*
- [Three-dimensional fluorescence microscopy through virtual refocusing using a recursive light propagation network](#)**  
Changyeop Shin\*, Hyun Ryu\*, Eun-Seo-Cho, [Seungjae Han](#), Kang-Han Lee, Cheol-Hee Kim, Young-Gyu Yoon  
*Medical Image Analysis*
- 2021    **[Nanoscale resolution imaging of the whole mouse embryos and larval zebrafish using expansion microscopy](#)**  
Jueun Sim\*, Chan E Park\*, In Cho\*, Kyeongbae Min, Minh Eom, [Seungjae Han](#), Hyungju Jeon, Hyun-Ju Cho, Eun-Seo Cho, Ajeet Kumar, Yosep Chong, Jeong Seuk Kang, Kiryl D. Piatkevich, Erica E. Jung, Du-Seock Kang, Seok-Kyu Kwon, Jinhyun Kim, Ki-Jun Yoon, Jeong-Soo Lee, Edward S. Boyden, Young-Gyu Yoon\*\*, Jae-Byum Chang\*\*  
*Preprint*
- [3DM: Deep decomposition and deconvolution microscopy for rapid neural activity imaging](#)**  
Eun-Seo Cho\*, [Seungjae Han](#)\*, Kang-Han Lee, Cheol-Hee Kim, Young-Gyu Yoon  
*Optics Express* [ 🏆 **Editor's pick, Image of the Week** ]
- [Efficient Neural Network Approximation of Robust PCA for Automated Analysis of Calcium Imaging Data](#)**  
[Seungjae Han](#), Eun-Seo Cho, Inkyu Park, Kijung Shin, Young-Gyu Yoon  
*International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*

- 2019      **Smartphone Application to Estimate Distances from LTE Base Stations Based on Received Signal Strength Measurements**  
Seungjae Han, Taewon Kang, Jiwon Seo  
*International Technical Conference on Circuits/Systems, Computers and Communications (ITC-CSCC)* [ **Oral** ]
- 2018      **Observation of Human Trajectory in Response to Haptic Feedback from Mobile Robot**  
 Hee-Seung Moon, Woohyun Kim, Seungjae Han, Jiwon Seo  
*International Conference on Control, Automation and Systems (ICCAS)*

## PUBLICATIONS (Domestic)

- 2019      **Machine Learning Based Sound Source Localization in the Indoor Environment**  
Seungjae Han, Sanghyeon Kim, Jiwon Seo  
*Korean Navigation Institute (KONI) Conference*
- Sound Source Localization in the Indoor Environment Based on Time Difference of Arrival Measurements**  
 Sanghyeon Kim, Seungjae Han, Jiwon Seo  
*Korean Navigation Institute (KONI) Conference*
- 2018      **Development of Human Following Mobile Robot Utilizing Haptic Signals**  
Seungjae Han, Hee-Seung Moon, Jiwon Seo  
*Korean Navigation Institute (KONI) Conference*

## AWARDS AND HONORS

- 2020-Now      **Government-sponsored scholar**, KAIST
- 2019      **Undergraduate Research Program (Research fund) & Outstanding Project Award**,  
 Korea Foundation for the Advancement of Science & Creativity
- 2019      **Short-term visiting researcher to Boğaziçi University, Turkey (Travel and lodging cost)**, Yonsei University
- 2019      **Excellence Award (START-UP102: Enterprise and Entrepreneurship)**, Yonsei University
- 2017-19      **IT Consilience Creative Program (Tuition waiver & monthly stipend)**,  
 Ministry of Science, ICT and Future Planning

## TALKS

- 2022      **Efficient methods to analyze big data from the brain**, Songlim high school (2022. 8)

## TEACHING EXPERIENCE

### Teaching assistant

- 2023      **Signals and Systems (EE205)**, KAIST  
*Introductory level course,*
- 2022      **Electronics Design Lab (EE305)**, KAIST  
*Undergraduate level course, about Circuits*
- Special Topics in Electrical Engineering <AI Capston Design> (EE488)**, KAIST  
*Senior level course, about Reinforcement Learning*
- 2021      **Electronics Design Lab (EE405A)**, KAIST  
*Senior level course, about Robotics*
- Basics of Artificial Intelligence (CoE202A)**, KAIST  
*Introductory level course, about Computer Vision*
- 2020      **Basics of Artificial Intelligence (CoE202A)**, KAIST  
*Introductory level course, about Computer Vision*

## MENTORING EXPERIENCE

2021      **Eunsu Kim** (Undergraduate Student at KAIST)  
Machine learning basics, Processing multiplexed images ([preprint](#) released on bioRxiv)

## PROFESSIONAL SERVICE

Reviewer      -----  
MICCAI 2022 (5 papers), 2023 (3 papers)

## REFERENCES

**Young-Gyu Yoon**, Assistant professor at KAIST

Ph.D. advisor at KAIST

✉ [ygyoon@kaist.ac.kr](mailto:ygyoon@kaist.ac.kr)

🏠 [Lab homepage](#)

**Kijung Shin**, Associate Professor at KAIST

✉ [kijungs@kaist.ac.kr](mailto:kijungs@kaist.ac.kr)

🏠 [Lab homepage](#)