

# Sunghyun Park

AI RESEARCHER

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## Research Interest

Computer Vision, Data-Centric AI, Data Scarcity, Human Avatar Digitization, Image and Video Synthesis

## Education

### Integrated Ph. D. in Artificial Intelligence

KOREA ADVANCED INSTITUTE OF SCIENCE AND TECHNOLOGY (KAIST), GRADUATE CANDIDATE

- Advisor: Prof. Jaegul Choo

*Daejeon, S.Korea*

*Mar. 2020 - Present*

### M.S. in Artificial Intelligence

KOREA UNIVERSITY, GRADUATE CANDIDATE

- Advisor: Prof. Jaegul Choo

*Seoul, S.Korea*

*Sep. 2019 - Feb. 2020*

### B.S. in Computer Science

KOREA UNIVERSITY

*Seoul, S.Korea*

*Mar. 2013 - Aug. 2019*

## Publications

### CONFERENCE PAPERS

- C1** S. Kim\*, **S. Park\***, S. Chung\*, J. Lee, Y. Lee, H. Kim, Mr Prabhat, and J. Choo. "Learning to Focus and Track Extreme Climate Events"  
**British Machine Vision Conference (BMVC), 2019, Cardiff, UK, Accepted as Spotlight**
- C2** **S. Park\***, and S. Choi. "PP-VTON: Pose-Preserving Image-based Virtual Try-On Network"  
**Korea Software Congress (KSC), 2019, Pyeongchang, South Korea**
- C3** **S. Park\***, K. Kim\*, J. Lee, J. Choo, J. Lee, S. Kim, and E. Choi. "Vid-ODE: Continuous-Time Video Generation with Neural Ordinary Differential Equation"  
**AAAI Conference on Artificial Intelligence (AAAI), 2021, Virtual, Accepted**
- C4** S. Choi\*, **S. Park\***, M. Lee\*, and J. Choo. "VITON-HD: High-Resolution Virtual Try-On via Misalignment-Aware Normalization"  
**IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2021, Virtual, Accepted**
- C5** T. Kim\*, C. Chung\*, **S. Park\***, G. Gu, K. Nam, W. Choe, J. Lee and J. Choo. "K-Hairstyle: A Large-scale Korean Hairstyle Dataset for Virtual Hair Editing and Hairstyle Classification"  
**IEEE International Conference on Image Processing (ICIP), 2021, Anchorage, USA, Accepted**
- C6** K. Kim\*, **S. Park\***, J. Lee, J. Lee, S. Kim, J. Choo, and E. Choi. "Continuous-Time Video Generation via Learning Motion Dynamics with Neural ODE"  
**British Machine Vision Conference (BMVC), 2021, Virtual, Accepted**
- C7** J. Lee\*, J. Yun\*, **S. Park**, Y. Kim, and J. Choo. "Improving Face Recognition with Large Age Gaps by Learning to Distinguish Children"  
**British Machine Vision Conference (BMVC), 2021, Virtual, Accepted**

- C8** C. Chung\*, T. Kim\*, H. Nam\*, S. Choi, G. Gu, **S. Park**, and J. Choo. "HairFIT: Pose-invariant Hairstyle Transfer via Flow-based Hair Alignment and Semantic-region-aware Inpainting"  
**British Machine Vision Conference (BMVC), 2021, Virtual, Accepted as Oral Presentation**
- C9** K. Kim\*, **S. Park\***, J. Lee\*, S. Chung, J. Lee, and J. Choo. "AnimeCeleb: Large-Scale Animation CelebHeads Dataset for Head Reenactment"  
**European Conference on Computer Vision (ECCV), 2022, Tel Aviv, Accepted**
- C10** S. Lee\*, G. Gu\*, **S. Park**, S. Choi, and J. Choo. "High-Resolution Virtual Try-On with Misalignment and Occlusion-Handled Conditions"  
**European Conference on Computer Vision (ECCV), 2022, Tel Aviv, Accepted**
- C11** C. Chung\*, T. Kim\*, Y. Kim\*, **S. Park**, K. Kim, and J. Choo. "Style Your Hair: Latent Optimization for Pose-Invariant Hairstyle Transfer via Local-Style-Aware Hair Alignment"  
**European Conference on Computer Vision (ECCV), 2022, Tel Aviv, Accepted**

## WORKSHOP PAPERS

- W1** S. Kim\*, **S. Park\***, S. Chung\*, J. Lee, Y. Lee, H. Kim, Mr Prabhat, and J. Choo. "Focus and track: pixel-wise spatio-temporal hurricane tracking"  
**ICML 2019 Workshop Climate Change: How Can AI Help?, 2019, California, USA**
- W2** S. Kim\*, **S. Park\***, S. Chung\*, J. Lee, Y. Lee, H. Kim, Mr Prabhat, and J. Choo. "Learning to Focus and Track Hurricanes"  
**NIPS 2019 Workshop Tackling Climate Change with Machine Learning, 2019, Vancouver, Canada**
- W3** **S. Park\***, K. Kim\*, S. Kim\*, J. Lee, J. Lee, J. Lee, and J. Choo. "Hurricane Nowcasting with Irregular Time-step using Neural-ODE and Video Prediction"  
**ICLR 2020 Workshop Tackling Climate Change with Machine Learning, 2020, Virtual, Accepted as Spotlight**
- W4** K. Kim, **S. Park**, J. Lee, and J. Choo. "Reference-based Image Composition with Sketch via Structure-aware Diffusion Model"  
**CVPR 2023 Workshop on AI for Content Creation, 2023, Vancouver, Canada**

## PREPRINTS

- P1** **S. Park\***, S. Chung\*, J. Lee, and J. Choo. "Improving Scene Text Recognition for Character-Level Long-Tailed Distribution"  
**Under review**
- P2** **S. Park**, S. Yang, J. Choo, and S. Yun. "Label Shift Adapter for Test-Time Adaptation under Covariate and Label Shifts"  
**Under review**
- P3** J. Lee\*, T. Kim\*, **S. Park**, Y. Lee, and J. Choo. "RobustSwap: A Simple yet Robust Face Swapping Model against Attribute Leakage"  
**Under review**

## Work Experience

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### Qualcomm AI Research

#### RESEARCH INTERN (EXPECTED)

- Test-Time Adaptation, Label Shift, Long-Tailed Classification

Seoul, S.Korea

Aug. 2022 - Aug. 2023.

## **Kakao Enterprise**

### **MEMBERSHIP PROGRAM**

- Long-Tailed Classification, Scene Text Recognition

Pangyo, S.Korea

Jul. 2021 - Dec. 2021.

## **Kakao Enterprise**

### **RESEARCH INTERN**

- Long-Tailed Classification, Scene Text Recognition

Pangyo, S.Korea

Mar. 2021 - Jun. 2021

## **Data and Visual Analytics Lab, Korea University**

### **UNDERGRADUATE RESEARCHER**

- Hurricane tracking
- Polyp detection with SSD (Single Shot Multi-box Detector)
- Brain stroke onset time classification with ResNet-3D model

Seoul, S.Korea

Jul. 2018 - Aug. 2019

## **Daumsoft**

### **INTERN**

- Instagram data analysis with object detection and clustering

Seoul, S.Korea

Jan. 2018 - Feb. 2018

## **Teaching Experience**

### **AI WORKSHOP INSTRUCTOR**

- **KAIST ML Engineer BootCamp**, instructing Machine Learning, Computer Vision, May.2022 - Jun. 2022
- **ISEF Mentor**, instructing Virtual Try-On, Feb. 2022. - Apr. 2022
- **FastCampus**, (The RED) instructing GAN, Nov. 2021.
- **SAIT**, (ML / DL Action Learning) instructing Computer Vision, Sep. 2021 - Oct. 2021.
- **SK Telecom**, (Big Tech Academy, AI Course) instructing Computer Vision, Sep. 2021.
- **Global Startup Academy**, instructing Computer Vision & Kaggle Competition, Dec. 2020 - Feb. 2021.
- **SK Telecom**, instructing Image generation, Sep. 2020.
- **Samsung DS KAIST** (AI Expert Program), instructing Image-to-Image translation, Oct. 2020.
- **Samsung DS KAIST** (AI Expert Program), instructing NLP, Oct. 2019.
- **Samsung DS KAIST** (AI Expert Program), instructing Computer Vision, Aug. 2019.

### **TEACHING ASSISTANT**

- **[AI599] Special Topics in Machine Learning : Deep Learning and Real-world Applications**, Mar. 2022 - Jun. 2022.
- **[AI604] Deep Learning for Computer Vision**, Sep. 2021 - Dec. 2021.
- **[AI604] Deep Learning for Computer Vision**, Sep. 2020 - Dec. 2020.
- **[AI602] Advanced Deep Learning**, Mar. 2020 - Jun. 2020.

## **Grant and Award**

### **AWARD**

- 2017 Qualcomm Innovation Award, Mar. 2018.
- Microsoft AI for Earth (ICLR Workshop Paper **[W3]**), May. 2020.
- 2021 Qualcomm Innovation Fellowship (AAAI Paper **[C3]**), Nov. 2021.
- 2021 Korean Artificial Intelligence Association, Best Paper Award (BMVC Paper **[C8]**).
- 2022 Korean Artificial Intelligence Association, Best Paper Award (ECCV Paper **[C9]**)

## **References**

### **Jaegul Choo**

JCHOO@KAIST.AC.KR

Associate Professor

KAIST

### **Joonseok Lee**

JOONSEOK2010@GMAIL.COM

Assistant Professor

Seoul National University, Google Research

