

Seonwook Park

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EDUCATION

ETH ZURICH

DR. SC. COMPUTER SCIENCE
 Jun 2020 | Zurich, Switzerland

MSc COMPUTATIONAL SCIENCE & ENGINEERING

May 2016 | Zurich, Switzerland
 Specialization: Robotics

IMPERIAL COLLEGE LONDON

BSc PHYSICS
 Jun 2013 | London, UK

UNITED WORLD COLLEGE OF S. E. ASIA

INTERNATIONAL BACCALAUREATE
 Jun 2009 | Singapore

EXPERIENCE

Lunit Inc. (Oncology Model Research Team)

Jul 2020 - Current

- Team Leader of the Oncology Model Research Team.
- Development of models for the Lunit SCOPE IO and Lunit SCOPE PD-L1 products.

RESEARCH SCIENTIST

Seoul, Korea

ETH Zurich (Advanced Interactive Technologies Lab)

Feb 2017 - Jun 2020

- Scientific research as PhD candidate with a focus on applying deep learning methods to eye gaze estimation.
- Assistance in organising and running courses, and supervising students.

RESEARCH ASSISTANT

Zurich, Switzerland

Nvidia Research (Learning and Perception Research Team)

Jan - Mar 2019

- Scientific research on improving gaze estimation through few-shot learning, using PyTorch.
- Managed hundreds of multi-GPU jobs on the NGC cluster and shared my own experiences internally to improve other researchers' workflows.
- Supervised by Dr. Shalini De Mello, Dr. Pavlo Molchanov, Dr. Umar Iqbal, and Prof. Dr. Jan Kautz.

RESEARCH INTERN

Santa Clara, CA, United States

ETH Zurich (Computer Vision and Geometry Group)

Jun - Sep 2016

- Evaluated various direct visual tracking formulations to improve robustness to lighting changes.
- Created synthetic and real-world (with a VICON Motion Capture system) datasets for comprehensive evaluations.
- Implemented various CUDA-optimized routines and methods using C++11.

RESEARCH ASSISTANT

Zurich, Switzerland

SAM Labs

Mar 2014 - Apr 2015

- Lead developer for first full prototype software using Node.js & Bluetooth LE.
- Experience with TypeScript, Node.js, AngularJS and KnockoutJS.

SOFTWARE ENGINEER

Remote

Measurement Lab

Jun - Sep 2013

GOOGLE SUMMER OF CODE STUDENT

Remote

Imperial College Photonics Lab

Jun - Aug 2012

UNDERGRADUATE RESEARCH ASSISTANT

London, UK

Max Planck Institute for Physics

Jun - Aug 2011

SUMMER STUDENT

Munich, Germany

PUBLICATIONS

(* indicates equal contribution across marked authors.)

Journal Papers

2020

- [J1] **Accurate Real-time 3D Gaze Tracking Using a Lightweight Eyeball Calibration**
Quan Wen, Derek Bradley, Thabo Beeler, **Seonwook Park**, Otmar Hilliges, and Feng Xu
Computer Graphics Forum (Proceedings of EUROGRAPHICS), 2020

Full Conference Papers

2021

- [C11] **Weakly-Supervised Physically Unconstrained Gaze Estimation**
Rakshit Kothari, Shalini De Mello, Umar Iqbal, Wonmin Byeon, **Seonwook Park**, and Jan Kautz
Conference on Computer Vision and Pattern Recognition (CVPR), 2021
Oral Presentation (4.2% of submissions)

2020

- [C10] **Self-Learning Transformations for Improving Gaze and Head Redirection**
Yufeng Zheng, **Seonwook Park**, Xucong Zhang, Shalini De Mello, and Otmar Hilliges
Neural Information Processing Systems (NeurIPS), 2020
- [C9] **Towards End-to-End Video-based Eye Tracking**
Seonwook Park, Emre Aksan, Xucong Zhang, and Otmar Hilliges
European Conference on Computer Vision, 2020
- [C8] **XGaze: A Large Scale Dataset for Gaze Estimation under Extreme Head Pose and Gaze Variation**
Xucong Zhang, **Seonwook Park**, Thabo Beeler, Derek Bradley, Siyu Tang, and Otmar Hilliges
European Conference on Computer Vision, 2020
Spotlight Presentation (3.2% of submissions)
- [C7] **Detecting Relevance during Decision Making from Eye Movements**
Anna Maria Feit*, Lukas Vordemann*, **Seonwook Park**, Caterina Bérubé, and Otmar Hilliges
ACM Symposium on Eye Tracking Research and Applications (ETRA), 2020

2019

- [C6] **Few-Shot Adaptive Gaze Estimation**
Seonwook Park*, Shalini De Mello*, Pavlo Molchanov, Umar Iqbal, Otmar Hilliges and Jan Kautz
International Conference on Computer Vision (ICCV), 2019
Oral Presentation (4.3% of submissions)

2018

- [C5] **Deep Pictorial Gaze Estimation**
Seonwook Park, Adrian Spurr, and Otmar Hilliges
European Conference on Computer Vision (ECCV), 2018
- [C4] **Learning to Find Eye Region Landmarks for Remote Gaze Estimation in Unconstrained Settings**
Seonwook Park, Xucong Zhang, Andreas Bulling, and Otmar Hilliges
ACM Symposium on Eye Tracking Research and Applications (ETRA), 2018
Best Presentation Award
- [C3] **Cross-modal Deep Variational Hand Pose Estimation**
Adrian Spurr, Jie Song, **Seonwook Park**, and Otmar Hilliges
Conference on Computer Vision and Pattern Recognition (CVPR), 2018
Spotlight Presentation (8.9% of submissions)
- [C2] **AdaM: Adapting Multi-User Interfaces for Collaborative Environments in Real-Time**
Seonwook Park, Christoph Gebhardt*, Roman Rädle*, Anna Feit, Hana Vrzakova, Niraj Dayama, Hui-Shyong Yeo, Clemens Klokmoose, Aaron Quigley, Antti Oulasvirta, and Otmar Hilliges
SIGCHI Conference on Human Factors in Computing Systems (CHI), 2018

2017

[C1] [Illumination Change Robustness in Direct Visual SLAM](#)

Seonwook Park, Thomas Schöps, and Marc Pollefeys
IEEE Conference on Robotics and Automation (ICRA), 2017

Workshop Papers

2019

[W1] [Content-Consistent Generation of Realistic Eyes with Style](#)

Marcel Bühler, Seonwook Park, Shalini De Mello, Xucong Zhang, and Otmar Hilliges
International Conference on Computer Vision Workshops (ICCVW), 2019
OpenEDS 2019 Image Generation Challenge Winner

RECOGNITION

2021	ICCV	Outstanding Reviewer.
	CVPR	Oral Presentation.
2020	ECCV	Spotlight Presentation.
2019	ICCV	Oral Presentation.
	OpenEDS (ICCV Workshop)	Image Generation Challenge Winner.
2018	CVPR	Spotlight Presentation.
	ACM ETRA	Best Presentation Award.

ACADEMIC ACTIVITIES

- 2021 Organizer of the [3rd Workshop on Gaze Estimation and Prediction in the Wild \(GAZE 2021\)](#) at CVPR
- 2020 Organizer of the [Workshop on Eye Gaze in AR, VR, and in the Wild \(OpenEyes 2020\)](#) at ECCV
- 2019 Organizer of the [1st Workshop on Gaze Estimation and Prediction in the Wild \(GAZE 2019\)](#) at ICCV

Reviewer for

COMPUTER VISION	TPAMI '19/'20, CVPR '19/'20/'21, ICCV '19/'21, BMVC '19, HANDS '19, GAZE '19/'20/'21
MACHINE LEARNING	NeurIPS '21
HUMAN-COMPUTER INTERACTION	CHI '19/'20, UIST '18, ETRA '21
COMPUTER GRAPHICS	TOG '19
ROBOTICS	ICRA '19, RA-L '21

INVITED TALKS

- 2021 Chungang University AI Talks on "AI for Improving Human Lives"
→ "Deep Learning in Gaze Estimation and with Lunit SCOPE"
- 2019 ICCV 2019 Paper Day at Naver
→ "Few-Shot Adaptive Gaze Estimation"
Seoul National University
→ "Representation Learning for Gaze Estimation"
Korean Students' Association Open Seminar Series at ETH Zurich
→ "Eye Tracking using Deep Learning"
- 2018 IBM Research Zurich
→ "Deep Learning Representations for Eye Gaze Estimation"
Korean Scientists' Colloquium at ETH Zurich.
→ "Learning to Find Eye Region Landmarks for Remote Gaze Estimation in Unconstrained Settings"
Tobii AB
→ "Learning to Find Eye Region Landmarks for Remote Gaze Estimation in Unconstrained Settings"

TEACHING

As Assistant to Instructor or Course

- 2019 ETH Zurich. *Machine Perception*.
- 2018 ETH Zurich. *Human Computer Interaction*.
ACM SIGCHI Summer School on Computational Interaction. *Deep Learning*.
ACM CHI Course. *Computational Interaction: Theory & Practice (Deep Learning)*.
ETH Zurich. *Machine Perception*.
- 2017 ETH Zurich. *Human Computer Interaction*.
ETH Zurich. *Software Design*.

SKILLS

PROGRAMMING

Proficient in

Python • C++ • JavaScript and variants

Paid work with

Go • HTML/CSS • PHP • \LaTeX

Experience with

Matlab • LabVIEW • SQL • ActionScript

TOOLS

PyTorch • Tensorflow • Keras

Git • Mercurial • SVN

CONTRIBUTED TO

OpenCV • Theano • Google Tango

REFERENCES

Prof. Dr. Otmar Hilliges

Associate Professor, ETH Zurich

Prof. Dr. Jan Kautz

Vice President of Learning and Perception Research, Nvidia

Dr. Shalini De Mello

Principal Research Scientist, Nvidia

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