

SUYEON CHOI

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RESEARCH INTERESTS

Computational Imaging, 3D Displays, Light Transport, Nanophotonics, and Optimization

EDUCATION

Stanford University

Sep 2019 –

Master of Science in Electrical Engineering

Seoul National University

Mar 2013 – Feb 2019

Bachelor of Science in Electrical and Computer Engineering, Summa Cum Laude

2-year absence to fulfill military duty (Aug 2015 – May 2017)

Seoul Science High School

Mar 2010 – Feb 2012

The school For Gifted Students

PUBLICATIONS

D. Yoo, S. Lee, Y. Jo, J. Cho, **S. Choi**, and B. Lee “15 focal planes head-mounted display using LED array backlight”, Proc. SPIE 11040, Optical Design Challenge 2019; doi: 10.1117/12.2525055;

RESEARCH EXPERIENCE

Optical Engineering and Quantum Electronics Laboratory, Seoul National University

Research Assistant Intern (Advisor : Professor Byoung-ho Lee)

2017, Jun 2018 – Present

- ★ Non-convex Optimization for Tomographic Displays :
 - Devised a novel optimization scheme for designs combining backlight and display panel
 - Applied DART and PALM algorithm to binary backlight optimization
- ★ Near-Eye Displays with 80 Focal Planes :
 - Developed a prototype that supports a large number of layers within the wide depth of field
 - Demonstrated the prototype at IMID 2018 SF-Zone
 - Synchronized backlight and focus-tunable optics by using Arduino and LabVIEW
- ★ *pyPupil* : an eye-tracker helper module for Pupil Labs products in Python (*PyPI*)
 - Implemented a calibration method without the world camera
- ★ Next-Generation Holographic Optical Metasurfaces :
 - Studied the latest research trends of metasurfaces and simulated several structures with COMSOL
 - Participated in the freshman seminar of the lab which covers *Fundamentals of Photonics*, by Saleh

Virtual Machine & Optimization Lab, Seoul National University

Undergraduate Research Project (Advisor : Professor Soo-Mook Moon)

Jan 2018 – Jun 2018

- ★ Gitchain : a decentralized version control system using blockchain network
 - Devised a novel protocol with optimization and implemented a prototype

WORK EXPERIENCE

Cyber Bureau, Korean National Police Agency

Mar 2016 – May 2017

Cybercrime Investigation Planning Team

- Selected as the only one agent from the whole auxiliary police officers
- Worked as a full-stack software engineer for the national performance management system

Sway Mobile, Inc

Jan 2015 – Feb 2015

Software Internship

- Implemented the In-App Purchase module for Android in Unity platform

Samsung SDS

Aug 2013 – Aug 2015

Samsung SDS sGen Club, Software Internship Program

- Participated in three projects of service development for two years.
- ★ White Cane : a walking aids iOS application using GPS for visually impaired people
 - Implemented turn-by-turn navigation logic with Naver Maps API and UI
 - Won bronze and popularity awards at the year-end project awards of all sGen Club teams

AWARDS AND SCHOLARSHIPS

Grand Prize in Blockchain technology contest, *LINE X Korean Institute of Information Sci. and Eng.* 2018
\$3,000 as awards, participated with *Gitchain* project.

Bronze Medal in the University Students Mathematics Contest, *the Korean Mathematical Society* 2016

Silver Medal in the **International Physics Olympiad (IPhO)** 2012

Gold Medal in both the Korean Mathematical/Physics Olympiad 2009/2008 respectively

Presidential Science Scholarship, *Korea Student Aid Foundation* 2013 – 2018

Full tuition and additional stipends (\$5,000 / year) for academic excellence.

Youth Scholarship, *Woongjin Foundation* 2012

TEACHING

Undergraduate Teaching Assistant

Digital Systems Design and Experiments, *Dept. of ECE, Seoul National University* Autumn 2018

Introduction to Electromagnetism, *Dept. of ECE, Seoul National University* Autumn 2017

Introduction to Circuit Theory and Laboratory, *Dept. of ECE, Seoul National University* Spring 2015

Digital Logic Design and Lab, *Dept. of ECE, Seoul National University* Autumn 2014

Tutor

Basic Physics, *Dept. of Physics, Seoul National University* Autumn 2014, Spring 2015, 2018

EXTRA CURRICULAR ACTIVITIES

Qualcomm IT Tour, *Qualcomm, San Diego* Aug 2017

Crime Prevention Police Company, *Seoul Eunpyeong Police Station* Sep 2015 – Mar 2016

- Served as an auxiliary policeman for military service

Seoul National University Children's Hospital, SNUH Jul 2013 – Jul 2015

- Taught math to patients of childhood cancer

Freshman Mentor, *Dept. of ECE, SNU* 2014

- Helped 10 freshmen adjust to university life

TECHNICAL STRENGTHS

Programming Languages

Proficient : MATLAB, Python, Javascript

Intermediate : C++, Java, Verilog, PHP, MySQL

Tools

Proficient : L^AT_EX, git, LabVIEW

Intermediate : Xilinx Vivado, COMSOL(EM wave analysis), Arduino

Deep Learning Frameworks

TensorFlow, Keras