

# SUYEON CHOI

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## RESEARCH INTERESTS

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

## EDUCATION

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### Seoul National University

Mar 2013 – Feb 2019

*Bachelor of Science in Electrical and Computer Engineering*

**GPA** (Overall : **4.13**/4.30, Major : **4.21**/4.30)

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

### Seoul Science High School

Mar 2010 – Feb 2012

*The school For Gifted Students*

## PUBLIC DEMONSTRATION

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S. Lee, Y. Jo, D. Yoo, **S. Choi**, B. Lee “Near-Eye Displays with 80 Focal Planes”, IMID 2018 SF-Zone

## RESEARCH EXPERIENCE

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### 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 for the 1st time
- ★ Near-Eye Displays with 80 Focal Planes :
  - Developed a prototype that supports a large number of layers within the wide depth of field
  - Synchronized backlight and focus-tunable optics by using Arduino and LabVIEW
- ★ *pyPupil* : an eye-tracker helper module for Pupil Labs products in Python (*Github*)
  - Implemented a calibration method without the world camera
- ★ Next-Generation Holographic Optical Metasurfaces :
  - Studied the latest research trends of metasurfaces and simulated the results using COMSOL
  - Participated in 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

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### 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**  
*Software Internship*

Jan 2015 – Feb 2015

- Implemented In-App Purchase module for Android in Unity

**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 the 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

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**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

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**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

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

**Security Patrol Service**, *Seoul Eunpyeong Police Station* Sep 2015 – Mar 2016

- Worked 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

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**Programming Languages**

Proficient : MATLAB, Python, Javascript

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

**Tools**

Proficient :  $\text{\LaTeX}$ , git, LabVIEW

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

**Deep Learning Frameworks**

TensorFlow, Keras

## REFERENCES

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**Byoung-ho Lee**

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**Soo-Mook Moon**

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