

Chaoying Gu (she/her)

School of Electronics Engineering and Computer Science, Peking University
+86 18751309186 | vanessagu@pku.edu.cn

EDUCATION

PEKING UNIVERSITY Beijing, China 09/2018–present

- Major in Electronic Information Engineering, Overall GPA: **3.776/ 4.000** (1/50 in EIE Dept), Major GPA **3.825/4.000**.
- Programming & software: C++, MATLAB, Python, Verilog; LaTeX, HTML, Origin
- Languages: TOEFL 108, GRE 334(4.0)

Awards and Honors

AEON Scholarship 01/2021
Third-class scholarship of Peking University 01/2020
Merit Student, Peking University (awarded to top 10% students in each academic year) 09/2019&09/2020&09/2021

PATENT

- A non-line-of-sight image reconstruction method, apparatus, and system. China Invention Patent. (09/2021 submitted)

RESEARCH EXPERIENCE

Learning-Based Imaging through Scattering 08/2020-present
Research Assistant, Supervised by Prof. Boxin Shi Peking University, Beijing, China

- Surveyed and presented about the simulator-trained and transfer-learned methods in imaging through scattering.
- Modeled ray-tracing renderer for scattering and trained deep generative networks on self-made simulation datasets.

Fast Non-Line-of-Sight (NLOS) Imaging 05/2021-present
Research Assistant, Supervised by Prof. Andreas Velten University of Wisconsin Madison, WI, US

- Independently implemented an edge-detection, interpolation and stitch method for SPAD array.
- Led a collaborative project in developing fast-convolution reconstruction for non-planar relay surface in NLOS, responsible for algorithm and data processing. My current method runs 20 times faster than the back projection.

Non-Line-of-Sight (NLOS) Imaging System and Algorithm 01/2021-08/2021
Research Assistant, Supervised by Prof. Chuanchuan Yang Peking University, Beijing, China

- Mastered the theory of phasor-field virtual wave optics and Rayleigh-Sommerfeld diffraction reconstruction.
- Proposed a criterion for selecting the virtual illumination function and corresponding wavelength.
- Developed a fusing algorithm of phasor-field method which can improve the reconstruction SSIM by around 20% on simulation datasets and prepared one paper (refining, to be submitted to Applied Optics).

Holographic Reconfigurable Surfaces (RHS) Antenna Design and Optimization 06/2020-01/2021
Research Assistant, Supervised by Prof. Lingyang Song Peking University, Beijing, China

- Surveyed the theory and design method of hybrid beamforming and reconfigurable holographic surface.
- Modeled a communication system with several base stations equipped with RHS and derived a fractional and convex optimization algorithm which can suppress specific undesired side-lobes by 700 times.

SELECTED PROJECTS

Smart Auto Cat Feeder System with Wireless Control and Package Design 02/2021-06/2021

- Led a team of three people, responsible for arranging workflow and purchasing components.
- Independently designed the feeder's auger and shell in openSCAD and built it with 3D printing.

Google Asia-Pacific Software Product Sprint 06/2020-08/2020

- Implemented a personalized social application based on Django, Django REST, MySQL and Dart.
- Became the most contributing participant elected by 5 group members.

Virtual Reality 3D Puzzle Game on PC Platform 06/2020-07/2020

- Led a group of 5 people to design a VR puzzle game using Unity3D and VIVE wave SDK and made a video demo.
- Coded to manipulate the perspective and conditional trigger of events and music.

Mask detection based on Faster Region-Convolutional Neural Network (R-CNN) 05/2020-06/2020

- Surveyed and presented about R-CNN object detection family, including Fast R-CNN, Faster R-CNN, YOLO and SSD.
- Trained Faster R-CNN in PyTorch to detect whether people are wearing masks, with 97.4% mean average precision.

EXTRA-CURRICULUM ACTIVITIES

Participated in bi-weekly voluntary work for the Stray Cat Caring Association, Peking University. 03/2019-03/2021

TEACHING

Teaching Assistant of professional course: Analysis and Design of Analog Circuits 09/2021-present

- Organized weekly discussion class and assignments Q&A.