HEYU GUO

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EDUCATION

Peking University (PKU) **09/2019 – 07/2023 *(Expected)***
B.Sc. in EE (IC Design) Beijing, China

- Cumulative GPA: 3.837/4.0 | Rank: 1/27 (Major), 1/124 (Category)
- **Relevant Coursework:** *Computer Networks* (93.5), *Principle of Communications* (Honor Track) (91), *Digital System Design based on HDL* (96), *Introduction to Artificial Intelligence* (95), *Signal Processing and Systems* (99), *Digital Logic* (99), *Analog Circuits* (95), *Computer Architectures* (91.5), *Operating System* (92), *Probability Theory and Statistics*(A) (97), *Data Structure and Algorithm* (93), *Practice of Programming in C and C++* (93)

HONORS

National Scholarship (Ministry of Education, top 0.1% in academic performance) **2022**
Merit Student Pacesetter (PKU, top 0.1% in comprehensive quality) **2021 & 2022**
May 4th Scholarship (PKU, top 0.1% in scientific research) **2021**
Excellence in Study Award (PKU, top 20% in academic performance) **2020**

PUBLICATIONS

RF-CHORD: Towards Deployable RFID Localization System for Logistics Network
Accepted for NSDI '23
Bo Liang, Purui Wang, Renjie Zhao, Heyu Guo, Pengyu Zhang, Junchen Guo, Xinyu Zhang, Chenren Xu

RESEARCH EXPERIENCE

Radar Tracking and Mapping **09/2022 – 12/2022**
University of Illinois Urbana-Champaign Wireless Networks Lab

- Inferred radar parameters from paper, GitHub and author; reproduced baselines using own data.
- Concluded failure modes and introduced attention mechanism in deep learning to increase accuracy of the worst case by nearly 50%.

RFID Localization and Tracking **04/2022 – 08/2022**
Peking University SOAR Lab

- Designed experiment to identify error sources; discovered and suppressed electromagnetic interference and multipath effect to reduce localization error by 80%.
- Designed equipment to accurately control orientation and motion of RFID tags with precision of 1° and 1mm, respectively.
- Wrote code to automatically generate and gather trace data; collected fine-grained data in 5m×5m space.
- Analyzed tracking data features, implemented algorithms and achieved 4x and 2x tracking accuracy compared to baseline hologram using Hidden Markov model and convolution neural network, respectively.

SF-Free ADR LoRa **03/2022**
Peking University SOAR Lab
- Clarified sentence logic, improved paper organization, identified research highlights and provided eye-catching design for system overview figures and experimental results.

Chia Coin performance **09/2021 – 12/2021**
Peking University Storage Lab
- Analyzed tens of thousands of lines of Chia Coin source code; interjected test parts to measure total running time for all steps.
- Discovered relationships between operating time and parameters and accelerated computing process.

Device Simulation **05/2021 – 07/2021**
Peking University SOI Lab
- Employed response surface model, designed Python program for numerical computing and reduced number of experiments.

COURSE PROJECTS

Maze Robot | *Introduction to Artificial Intelligence* **03/2021 – 06/2021**
- Collected data from multiple sensor types, completed high-speed transfer to PC, obtained maze terrain and localized E-puck robot with accuracy of 5cm.
- Introduced feedback to improve 5x accuracy of robot motion.
- Designed algorithms with Monte-Carlo and CNN for pathfinding, reducing pathfinding time by 80% compared to baseline.
- Visualized maze map and robot trace using MATLAB and developed user-friendly interface using Pygame.

EXTRACURRICULAR ACTIVITIES

Public research introduction, EECS Student Union **09/2019 – 06/2020**
- Interviewed department lab and wrote articles detailing research achievements for more than 1,500 readers.
- Organized academic lectures as member of EECS Student Union, reaching more than 500 students.

SKILLS

- **Languages:** Mandarin (native), English (TOEFL: 105/120; GRE: 336/340)
- **Programming:** C, C++, Python, MATLAB, Verilog
- **Software:** Candence, SPICE, Vivado, ModelSim, HFSS, SOLIDWORKS, Wireshark, Overleaf, GnuPlot, Webots, Stata
- **Frameworks/Platforms:** PyTorch, TensorFlow, GitHub, Linux, Arduino, Cloud, GitBook, ROS
- **Soft Skills:** Leadership, event management, writing, public speaking, time management