Heyu Guo

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EDUCATION

Peking University **09 2019 – 07 2023**
B.Sc in IC Design - CGPA - 3.83/4.0- Percentage - 1%(1/124) *Beijing, China*

Courses: 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

Peking University **09 2021**
Wu Si Scholarship, top 0.1% in Peking University *Beijing, China*

Peking University **09 2021**
Merit Student Pacesetter, top 0.1% in Peking University *Beijing, China*

Peking University **09 2020**
Excellence in Study Award, top 20% in Peking University *Beijing, China*

PUBLICATIONS

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

RESEARCH EXPERIENCES

RFID Tracking | SOAR Lab in PKU **04 2022 - 08 2022**

- Designed equipment to accurately control the orientation and motion of RFID tags with precision of 1° and 1mm respectively, collected fingerprint data in a space of 5m × 5m.
- Designed experiment to evaluate error sources, discovered and suppressed electromagnetic interference and multipath effect to reduce localization error by 80%.
- Wrote code to generate, handle stochastic trace and self-adaptively beamform specific for tracking and collected tracking data.
- Analyzed tracking data features and achieved accuracy four times and two times compared to the hologram with the Hidden Markov model and convolutional neural network, respectively.

SF-Free LoRa ADR | SOAR Lab in PKU **03 2022 - 03 2022**

- Clarified sentence logic, improved paper organization, and discovered highlights in research.
- Plotted figures in the paper conveyed system overview and experiment results explicitly and beautifully.

Chia Coin performance | Storage Lab in PKU **09 2021 - 12 2021**

- Analyzed source code of Chia Coin of tens of thousands of lines, interjected test parts in measuring all steps' running time.
- Found relationships between operating time and parameters and accelerated computing process.

Device Reliability Simulation Acceleration | SOI Lab in PKU **05 2021 - 07 2021**

- Employed Response Surface Model, designed Python program for numerical computing, reduced experiments number.

COURSE PROJECTS

Maze Robot | Introduction to Artificial Intelligence **03 2021 - 06 2021**

- Collected data from multiple kinds of sensors, localized the E-puck robot, obtained the maze terrain with an accuracy of 5cm and introduced feedback to improve the accuracy of robot motion by five times.
- Designed algorithms in pathfinding and CNN that reduces path finding time by 80% compared to baseline.
- Developed a human-computer interaction interface via Pygame and visualized maze map and robot trace in MATLAB.
- Made simulation in Webots and evaluated algorithm effect.
- Deployed in the laboratory environment and adjusted movement parameters, achieved 50% more motion accuracy.

SKILLS

Languages: TOEFL(105/120), GRE(336/340), Mandarin
Programming Languages: C, C++, Python, MATLAB, Verilog
Tools: Candence, SPICE, Vivado, ModelSim, HFSS, SOLIDWORKS, Wireshark, Overleaf, GnuPlot, Webots
Frameworks/Platforms: PyTorch, Github, Linux, Arduino, Cloud, GitBook, ROS
Soft Skills: Leadership, Event Management, Writing, Public Speaking, Time Management

EXTRACURRICULAR

IoT System Open Source **04 2022 - 04 2022**

- Wrote document for a commercial scale FPGA project.

Research introduction to public **09 2019 – 06 2020**

- Interviewed department lab and wrote articles in research achievement for the public impacting over 1500 audience
- Organized academic lectures as a member of the department student union, reaching over 500 students