XIANG GAO

+1 (760) 702-9916 ◇ 478 One Miramar Street, La Jolla, CA, 92092
x9gao@ucsd.edu ◇ Website ◇ Linkedin ◇ Github

EDUCATION

Master of Science in Electrical and Computer Engineering | UC San Diego **Jan 24' - Mar 25'**
- **Relevant Course:** Digital Signal Processing, Data Analysis, Visual Learning. | 4.0/4.0 GPA.

Bachelor of Engineering in Communication Engineering | Tianjin University **Sep 18' - Jun 22'**
- **Relevant Course:** Mobile Communication, Principle and Design of FPGA, Satellite Communication, Microwave Communication, Sensor System Design, Optical Fiber Communication. | 3.55/4.00 GPA | **Honor**: University-Level Outstanding Graduate.

TECHNICAL SKILLS

Programming Languages: Python, Matlab, VHDL, FPGA, C, C++, Java, Perl, HTML/CSS, JavaScript, Shell/Bash.
Tools & Frameworks: Git & Github, Docker, Hadoop, SQL Server, JupyterNotebook.
Machine Learning & Data Analytics: Tensorflow, Pytorch.

RELEVANT WORK EXPERIENCE

Full-time 4G/5G Integration & Verification Engineer | **BNEW DNEW NSV RES, Ericsson** **Sept 22' - Apr 23'**
- Responsible for verifying and validating Ericsson 4G/5G transport products to ensure the quality of the deliverables.
- Setup verification environment for both hardware and software to meet the requirement of verification.
- Designed, reviewed, executed, and debugged the test cases for Router&Switch products, e.g., LTE CA.
- Developed automation test environment, developed and improved scripts for regression test cases in Java and Perl.
- Supported the investigation of global customer issues.

Intern Search Algorithm Engineer | **Growth Strategy Department, Baidu** **Jun 22' - Sept 22'**
- Responsible for the R&D of basic strategies related to anti-cheating search engines on mobile and PC terminals.
- Using the Hadoop framework to mine, identify, and classify mass web resources based on big data and help users get effective network information when searching the internet.
- Iterated multiple anti-cheating strategies, familiar with the whole process of case solution using python and shell scripts.

RELEVANT PROJECTS

Automated Network Configuration for 5G IAB Driven by RL **Winter 2024**
- Developed a Reinforcement Learning(RL) framework for 5G Integrated Access and Backhaul(IAB) networks, using Kernel Density Estimation (KDE) for data-driven stochastic simulation, improving backhaul reliability by 10% and bridging the simulation-to-reality gap.
- Implemented a piecewise multi-objective reward shaping mechanism, optimizing multiple network slice goals simultaneously, achieving 32x faster convergence without extensive hyperparameter tuning.
- Validated the framework using a custom-built mmWave IAB testbed with 60 GHz radios and a large-scale 3D ray tracing simulation environment, demonstrating substantial improvements in multi-objective optimization, power management, and scalability of 5G IAB networks.

Energy-Efficient Asymmetric Communication for Sustainable IoT Devices **Spring 2024**
- Developed an asymmetric communication approach using the SlimWifi concept to significantly reduce IoT communication energy consumption, enhancing sustainability.
- Simulated energy-efficient OOK signal transmission with Matlab and validated channel performance using USRP devices, optimizing energy efficiency in signal transmission.
- Implemented OFDM demodulation for efficient bit sequence integration into MAC payloads and employed machine learning for precise signal processing at the MAC layer, focusing on minimizing power usage.
- Achieved potential energy reduction in signal transmission from tens or hundreds of milliwatts to approximately 100 microwatts, while maintaining signal integrity and quality.

Intelligent Workshop Production Call System **Fall 2021**
- Supervised and managed team members to design and program the embedded software of an Intelligent Call System, enhancing factory machinery repair efficiency.
- Engineered the core program in C and successfully ported various modules, including the RC522 RF module, to the STM32 microcontroller. Integrated Wi-Fi remote calling functionality and developed a fully functional physical prototype.