# Sen Wang

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## EDUCATION

**Ph.D. in Computer Engineering** *Jan 2021 - Dec 2024*
Virginia Tech, Blacksburg, VA GPA: 4.0/4.0

**M.S. in Electrical and Computer Engineering** *Aug 2018 - Dec 2020*
Georgia Institute of Technology, Atlanta, GA GPA: 3.9/4.0

**B.S. in Automation Engineering** *Sept 2014 - June 2018*
Northeastern University, China GPA: 90/100

## WORK EXPERIENCES

**Qualcomm Technologies, Inc** *June 2024 - September 2024*
System Performance Engineer Intern *San Diego, CA*

- Developed new software systems to automate power analysis across different chips/benchmarks/AI workloads
- Designed fast ($O(n)$) algorithms for large-scale data slicing, analysis, and database generation
- Achieved 100x speed up compared to old parser/manual profiling
- Conducted profiling experiments to measure DRAM bank conflicts, made plans to improve I/O bandwidth

**General Motors** *Nov 2023 - Present*
Research Collaboration *Blacksburg, VA*

- Proposed new algorithms to optimize wait-free communication protocols to reduce memory overhead
- Participated in simulation experiments and reduced memory overhead by 8%

**Georgia Tech / Virginia Tech** *2020 - 2024*
Graduate Teaching/Research Assistant *Atlanta, GA / Blacksburg, VA*

- GTA Courses: Computer Vision, Artificial Intelligence and Machine Learning, Control Systems, Info Security

## RESEARCH PROJECTS (SELECTED)

**Real-Time Autonomous Driving System Optimization** *Aug 2023 - Present*

- Developed an autonomous driving software system on NVIDIA Jetson AGX board, Linux OS
- Proposed a dynamic priority assignment algorithm and improved 30% system performance online

**General Real-time System Design and Optimization** *Sep 2021 - Dec 2023*

- Proposed an optimization framework for real-time embedded systems design (e.g., DVFS, control system)
- Achieved 1000x speed-up than the state-of-art methods with close-to-optimal (3%) performance

**GPU Scheduling based on Nonlinear-Optimization in Linux** *Aug 2020 - Dec 2021*

- Designed and implemented a new GPU scheduling algorithm to reduce GPU context switching overhead
- Integrated the scheduler into kernel space scheduling with a new system call function

## RESEARCH AWARDS

- 2020 **IROS** Best Entertainment and Amusement Paper Award Finalist (4/1129 accepted papers)
- Pratt Fellowship Award, Virginia Tech ECE Department, 2024

## TOP-TIER PUBLICATIONS (SELECTED, FIRST-AUTHOR)

1. "Optimizing Logical Execution Time Model for Both Determinism and Low Latency", IEEE Real-Time and Embedded Technology and Applications Symposium (**RTAS**), 2024
2. "*Time-Triggered Scheduling for Non-Preemptive Real-Time DAG Tasks Using 1-Opt Local Search*", IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (**TCAD**), 2024
3. "A general and scalable method for optimizing real-time systems with continuous variables", IEEE Real-Time and Embedded Technology and Applications Symposium (**RTAS**), 2023
4. "*Robot calligraphy using pseudospectral optimal control in conjunction with a novel dynamic brush model*". IEEE/RSJ International Conference on Intelligent Robots and Systems (**IROS**), 2020

## SKILLS AND INTERESTS

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|---|---|
| **Real-time / Embedded systems** | Scheduling, RTOS, Linux, kernel, DVFS, communication protocol |
| **Computer Architecture** | Profiling, Energy, Schematic, PMIC, DRAM, cache, ARM, GPU |
| **Machine Learning** | CV, LLM, Optimization, Model compression, AutoML, Pytorch |
| **Programming and Algorithms** | **C/C++**, Python, Java, GPU(CUDA), Git, SQL, Unit tests |
| **Distributed systems** | System design, Database, MySQL |