# Sen Wang

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## EDUCATION

**Virginia Tech, Blacksburg, U.S.** *Jan 2021 - (Expected) May 2025*
Doctor of Philosophy in Computer Engineering GPA: 4.0/4.0

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

**Northeastern University, Shenyang, China** *Sept 2014 - June 2018*
Bachelor of Automation, Automation Experimental Class GPA: 3.99/5 (A=4.5)

## RESEARCH AND EXPERIENCES

**Resource-Constrained Machine Learning System Optimization** *Nov 2023 - Present*

- Propose an AutoML optimization framework that collaborates training data and system design
- Propose an optimal algorithm with only logarithmic complexity
- Reduce around 30% ML application's end-to-end latency by improving training data quality
- Improving training data robustness by performing system-level resource allocation (e.g., priority assignments)

**Real-time System Design and Optimization** *Sep 2021 - Present*

- Propose a general optimization framework for systems configuration/parameter optimization
- Support many applications such as energy optimization with DVFS, task sets with DAG dependency
- Achieve 1000x speed-up than the state-of-art with less than 3% performance loss

**Logical Execution Time Model Optimization** *Mar 2023 - Present*

- Propose a new LET optimization framework based on symbolic optimization with an optimality guarantee
- Reduce $30-70\%$ end-to-end latency than alternative AUTOSAR communication protocols and SOTA

**Robot Calligraphy** *Jan 2019 - Dec 2020*

- Design a novel brush model and fit its parameters based on regression to reduce the sim2real gap
- Formulate an efficient least-square optimization problem with 30x speed-up and excellent performance

**Graduate Teaching Assistant** *2020 - 2024*

- Computer Vision, Advanced Computer Vision, Artificial Intelligence and Machine Learning

## AWARD

2020 IROS Best Entertainment and Amusement Paper Award Finalist (4/1129 accepted papers)

## SELECTED TOP-TIER PUBLICATION

1. **S Wang**, R Williams, H Zeng, "*A General and Scalable Method for Optimizing Real-Time Systems with Continuous Variables*". IEEE Real-Time and Embedded Technology and Applications Symposium (**RTAS**), 2023
2. **S Wang**, D Li, AH Sifat, S Huang, X Deng, C Jung, R Williams, H Zeng, "Optimizing Logical Execution Time Model for Both Determinism and Low Latency", IEEE Real-Time and Embedded Technology and Applications Symposium (**RTAS**), Accepted, 2024
3. **S Wang**, J Chen, X Deng, S Hutchinson, F Dellaert, "*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

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|---|---|
| **Real-time (Embedded) system** | Process/Resource Scheduling, Optimization, RTOS, Linux, OS |
| **Programming** | **C++**, Python, PyTorch, Java, GPU(CUDA), Git, SQL, Unit tests |
| **Robotics** | SLAM, Motion Planning, ML, ROS, Sensor Fusion |
| **Mathematical optimization** | Linear/Nonlinear programming, Numerical linear Algebra, Sparsity |
| **Machine Learning** | Data-Centric ML, Trustworthy ML, Transformer, LLM |