

Weiwei Wang

Visiting Assistant professor
University of South Alabama

Email: weiweiwang@southalabama.edu

Education

- **Florida State University** Tallahassee FL
Ph. D. Electrical Computer Engineering 2025
 - Thesis: Fast Convolution Algorithm for Artificial Intelligence (Ai) Acceleration
 - Advisor: Profs. Victor DeBrunner
- **Yanshan University** Qinhuangdao China
M.Sc Signal and Information Engineering 2012
 - Thesis: Video shot detection based on the MPEG video
 - Advisor: Profs. Chengru Wang
- **Yanshan University** Qinhuangdao China
B.Sc Electrical and Computer Engineering 2009

Research interest

- AI, Edge AI, IC design
- Object detection
- Software & Hardware interaction
- Algorithm prototypes & hardware (FPGA) acceleration
- Digital Image processing, Video Codec

Publications (First Author)

- Fast Convolution Algorithm for Artificial Intelligence (Ai) Acceleration. ProQuest Dissertation & These Global, 2025
- An Efficient Hardware Implementation of 2D Convolution based on the Discrete Hirschman Transform. ISCAS 2025.
- Very Efficient Convolutional Neural Network based on the Discrete Hirschman Transform, IEEE Asilomar, 2024.
- Fast Convolution Algorithm for Real-valued finite length sequences, IEEE ICASSP, 2023.
- MPEG Video Shot Boundary Detection based on Motion Vectors. Journal of Computer Applications, 2012.
- Comparison of the Fast Convolution Algorithms for Finite Length Sequences, (IEEE Transactions on Signal Processing (TSP), under review).

- Grapevine Bud Burst Detection in Challenging Environments Using Field-Acquired RGB Images with YOLOv9. (Journal “MDPI-Agriculture”, under review)
- Detection of Grapevine Inflorescence Using Improved YOLOv9 with Field-Acquired RGB Images. (for Journal “Computers and Electronics in Agriculture”, currently under revision by co-authors)

Research Experience

- **DGR AI Project (collaborate with Tallahassee Goodwill and FSU College of Business)**
Technical director 09/2025 -
 FSU
- **Fast Convolution Algorithms for AI acceleration**
Research Assistant 08/2021 - 06/2025
 – Advisor: Profs. Victor DeBrunner
- **Grapevine grows stages monitoring and cultivation optimization (National founded Project)**
Research Assistant 05/2024 - 10/2024
 – Grapevine image processing and analysis
 – Advisor: Profs. Jingqiu Chen
- **Digital image processing based on compressed video** Qinhuangdao China
Research Assistant 09/2009 - 05/2012
 – Video shot detection based on the MPEG video
 – Advisor: Profs. Chengru Wang

Teaching Experience

- **VLSI System design (EE490) and VHDL(EE440/540)** USA
Instructor Spring 2026
- **Circuit design (EE 220) & Physical electronics (EE331)** USA
Instructor Fall 2025
- **Intro to Artificial Intelligence(EEE4872/EEL5875)** FSU
Teaching Assistant Fall 2023 & Fall 2024
 – Instructors: Profs. Victor DeBrunner, Profs. Marcos M. Vasconcelos
- **Microprocessor or Based System Design (EEL 4746)** FSU
Teaching Assistant Fall 2021 & Fall 2022
 – Instructor: Profs. Yuann. Li
- **Programming Languages for Computer Engineers (EEL 4887)** FSU
Teaching Assistant Spring 2023& Spring 2024
 – Instructor: Profs. Linda S. DeBrunner
- **Digital Image Processing (EEL 4759/5820)** FSU
Teaching Assistant Spring 2022
 – Instructor: Profs. Victor DeBrunner

Employment

- **Dept. of Electrical and Computer Engineering** University of South Alabama
Assistant Professor 08/2025 -
- **College of Agriculture and Food Sciences** Florida A&M University
Research Scientist 05/2024 - 10/2024
- **Dept. of Electrical Computer Engineering** Florida State University
Teaching Assistant 08/2021 - 05/2025
- **Hardware Team of SoC** Montage Semiconductor Tech
Firmware Engineer 06/2012 - 10/ 2018

Technical Skills

- AI Algorithm analysis and optimization
- Object Detection
- Digital signal Processing, Digital image processing
- Analog/Digital circuit design and IoT
- Hardware implementation (FPGA/ Microprocessor)
- Embedded System
- Programming Language
 - MATLAB, Python, C/C++, VHDL, Assembly

Academic Service and Contributions

- Reviewer for the following Conferences:
 - IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)
 - IEEE International Symposium on Circuits and Systems (ISCAS)
- Advisor of IEEE HKN for University of South Alabama Branch
- Officer of the IEEE Mobile Section Educational Activities

Grants, Honors, and Awards

- “AIMS-UP: Artificial Intelligence & Modern Skills for Undergraduate Preparedness”, Role: Co-Principal Investigator. Submitted to National Science Foundation (NSF). Amount Requested: \$3,795,070. *Under Review.*
- “Advancing K-12 AI Literacy through Real-World Applications in Microplastics Detection and Environmental Science”, Role: Co-PI. Submitted to National Science Foundation (NSF). Amount Requested: \$100,000. *Under Review.*
- “AI-Driven Automated Detection and Pricing System for Circular Economy”, Role: PI. Submitted to University of South Alabama. Amount Requested: \$5000. Submitted.

- “Sustainable Intelligence Hardware Software Co-Design for AI on FPGAs”, Role: PI. Submitted to NSF. Amount Requested: \$333,333. Under review for internal competition.
- IEEE Tallahassee Section Award, Presentation Award 2024
 - ECE department, Florida State University
- Outstanding Employee Award 2015
 - Montage Tech. Shanghai
- Distinguished Graduate Student Award 2012
 - Yanshan University
- Distinguished Undergraduate Student Award 2009
 - Yanshan University

Languages

- Mandarin (native)
- English (fluent)

References

Prof. Victor DeBrunner

Professor

Electrical and Computer Engineering

Florida State University

850.329.0872

victor.debrunner@fsu.edu

Prof. Linda S. DeBrunner

Professor

Electrical and Computer Engineering

Florida State University

850/410-6462

linda.debrunner@eng.famu.fsu.edu

Dr. Yuann Li

Assistant Professor

Electrical and Computer Engineering

University of Pittsburgh

yuan.li@pitt.edu