

# JUN CAO

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## Education

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### Chalmers University of Technology

*Master of Information and Communication Technology*

**First-year GPA:** 5.0/5.0

**Relevant Coursework:** Digital communication system; Antenna design & measurement; Remote sensing system

**Gothenburg, Sweden**

*Sep.2024-Present*

### Southeast University, Chien-shiung Wu College (Honors College)

*Bachelor of Science, major in Information Science and Engineering*

**Overall GPA:** 3.93/4.0

**Main Honors:** *National Scholarship* (2021); *Tong Ren Ding Scholarship* (Corporate-sponsored, 2022)

**Nanjing, China**

*Sep.2020-Jun.2024*

## Publication

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Wei Xue, Yixiang Huang, **Jun Cao**, YuCheng Yu, FeiFei Hui, Chao Yu, "Dynamic Matching Power Amplification Technique for Transmitting Time-Variied Signals With Large Modulated Bandwidth and Frequency Range," in *IEEE Transactions on Microwave Theory and Techniques*, 2024. [[Paper Link](#)]

### **Main Contributions:**

- Developed and authored the core section of the paper, focusing on the design and implementation of an LMS-based adaptive FIR filter. The algorithm successfully generated dynamic matching control signal for power amplifiers during real-time laboratory testing.
- Illustrated research concepts and system architectures by designing and creating key figures and block diagrams for the publication.

## Research Experience

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### **Data-driven speech recovery in a fiber-optic polarization-based sensing system**

*Verilog, MATLAB, Python*

*Sep.2025-Present*

- The main research question is *to what extent can an acoustic signal be reconstructed at the optical communication receiver.*
- Expected to simulate the fibre-optical communication system and implement a data-driven speech recovery algorithm.

### **Digital predistortion linearization technology of power amplifiers and FPGA implementation**

*Verilog, MATLAB, Python*

*Sep.2023-Jun.2024*

- Completed Verilog implementation of GMP and MP models of digital predistortion with *Xilinx Zynq UltraScale+ ZCU102 Evaluation Kit.*
- Finished the overall simulation of digital predistortion in MATLAB using various models and expanded the test scenario to broadband test signals (200MHz 5GNR).

### **Design of 5G millimeter wave massive MIMO beam measurement system**

*C++, MATLAB*

*Sep.2022-Jun.2023*

- Developed and tested a software platform suitable for joint simulation of turntables, antennas and various measuring instruments based on MATLAB.
- Learned the basic knowledge of antennas and important parameters for measuring antenna performance and gained experience in laboratory measurement.

## Professional Experience

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### Project Assistant Intern

Jun.2025-Aug.2025

*Department of Space, Earth and Environment, Chalmers University of Technology*

- Resolved software incompatibility issues of a proprietary remote sensing application (C++, Delphi, Pascal, developed with RAD Studio) for Windows 10 and 11, originally developed on Windows 7.
- Contribute to extensive laboratory tests for various real-time online devices to ensure software stability and reliable performance.
- Developed an open-source, desktop application submodule for compressing and extracting random Flags, available at [[GitHub Link](#)].

### International Student Ambassador

Oct.2024-Present

*Chalmers University of Technology*

- Created and managed engaging content for student social media platforms, including 8 blogs and 5 Instagram Reels, participating in daily social media operation.
- Managed online communication platforms for the MPICT project, aiming to facilitate public understanding of the university and its related programs.

## Selected Course Projects

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### RF Circuit Modeling and CAD with Systemvue

*Keysight & Southeast University joint course*

Sep.2022-Jan.2023

- Joint simulation of Systemvue software and MATLAB to implement digital predistortion of balanced power amplifiers using various models.
- Second place among 12 groups in the final project assessment.

### Comprehensive circuit system design: Phase-locked loop circuit simulation

*Verilog AMS, C++, Python*

May.2022-Jun.2022

- Implement basic signal simulation in MATLAB Simulink.
- Design the phase-locked loop circuit in Cadence Virtuoso, combined components such as VCO and Frequency Detector in the form of a circuit and completed the simulation and optimization goals.

## Extracurricular Activities

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Chairman of Student Union of Chien-shiung Wu College, Southeast University

Sep.2022-Sep.2023

## Skills & Interests

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**Programming Languages:** MATLAB (fluent), Verilog, Python, C/C++

**Engineering Software:** Vivado, Quartus, Multisim, ADS, Systemvue, Cadence Virtuoso

**Systems:** Linux, Mac, Windows

**Interests:** Flim, Music, Jogging