PERSONAL

Name: Xuan Huang **Phone**: 15775667312
Date of Birth: June 2005 **Email**: huang.xuan@std.uestc.edu.cn

EDUCATIO

University of Electronic Science and Technology of China *Sep. 2022 – Present*
School of Information and Communication Engineering *Communication Engineering*

- **GPA (weighted): 91.68/100** **Major Ranking: 5/193 (Top 2.6%)** **CET-4: 664** **CET-6: 625**
- **Key Courses:** Digital Signal Processing (99) , Circuit Analysis and Electronic Circuits (97) , Digital Logic Circuits and Systems (96)
- **Honors: National Scholarship (Top 1.5%)**, First-Class Scholarship for Excellent Students (Top 8%)

PROJECTS & RESEARCH

1) Self-powered Multimodal Emotion Recognition System *Dec. 2023 – Aug. 2024*

Supervisor: Prof. Ding Zheng, Prof. Chang Wu

- Developed a self-sustained, multimodal emotion recognition system integrating EEG, speech, and text signals, enabled by flexible OPV technology.
  - **Multimodal Fusion Model**: Combined a Task-aware Multimodal Binding Learning (TMBL) model with a Vision Transformer for dual-modality (audio-text) analysis, fusing the decision output with EEG signals.
  - **IoT System Development**: Developed full-stack system with ESP32-based EEG acquisition, Huawei Cloud for IoT data storage, Alibaba Cloud for backend model deployment, and WeChat Mini Program frontend.
  - **WeChat Mini Program**: Designed visualization interface supporting emotion monitoring and mood diary features.
- **Achievements**:
  - First-author paper *Voice Recognition System for Speech-to-Text and GPT Communication Powered By Organic Photovoltaic* accepted by *ICDT 2025*.
  - National First Prize in Huawei IoT Design Competition (Top 3.6%).
  - Rated Excellent in National Innovation and Entrepreneurship Program.

2) Tunable Structural Color Based on Multilayer Films *Dec. 2023 – Aug. 2024*

Supervisor: Prof. Zhijun Liu

- Designed temperature-driven dynamic structural color using Fabry–Pérot cavities and phase-change GST films, simulating tunable reflection spectra.
  - **Transfer Matrix Modeling**: Derived electromagnetic field transfer matrices for Fabry–Pérot multilayer cavities; established global transmission model using boundary conditions and tangential continuity equations.
  - **Reflectance Simulation and Optimization**: Developed MATLAB code for dynamic reflectance prediction; optimized layer thicknesses and dielectric constants to simulate tunable color performance.
- **Achievement**: Rated Excellent in National Innovation and Entrepreneurship Program.

3) Energy Efficiency Optimization for Mobile Antennas *Dec. 2024 – Present*

Supervisor: Prof. Weidong Mei

- Explored dynamic energy efficiency optimization for motor-driven mobile antennas, modeling the relationship between EE and antenna motion.
  - **Mathematical Modeling Support**: Participated in the derivation of the stepper motor power model and the global EE optimization problem; analyzed the impact of movement speed on motor torque and system energy efficiency.
  - **Literature Review**: Reviewed recent research on movable antenna systems, summarized modeling approaches and limitations, and contributed to the technical background section of the project paper.

COMPETITION AWARDS

1）Huawei Cup National IoT Design Competition	**National First Prize**	**Aug. 2024**
2）China Undergraduate Mathematical Contest in Modeling	**National Second Prize**	**Dec. 2024**
4）National English Competition for College Students (NECCS)	**National Second Prize**	**May 2024**
3）Mathematical Contest in Modeling (MCM)	**Honorable Mention**	**May 2024**

EXTRA-CURRICULUM ACTIVITIES

- **Peer Guidance**: Certified Peer Counselor at UESTC (University-wide & School level) Mar. 2024 – Present
- **Student Work**: Class Study Committee Member (2022010906), Class awarded “Excellent Class” Sep. 2022 – Present
- **Social Practice**: Member of “One Department, One Class” Summer Program Jun. 2023 – Sep. 2023

SKILLS

- **Programming**: Python, MATLAB, C; **Tools**: Multisim, Vivado; **Development**: WeChat Mini Program (JavaScript), Arduino (ESP32)