PERSONAL INFORMATION

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

EDUCATION

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 EXPERIENCE

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 at 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.
  - **Model Construction**: Contributed to stepper motor energy model and global EE optimization framework.
  - **Theoretical Analysis**: Analyzed the positive impact of torque attenuation at high speeds on energy efficiency.

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)