Jingwei Tang
Master's Candidate

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Education

- **Harbin Engineering University (Recommended Admission)** — Harbin, Heilongjiang
  Master of Engineering in Electronic Information (Control Engineering) — *Sept. 2024 – June 2027*
  - **Achievements**: Top 20% in class.
- **Hunan Agricultural University** — Changsha, Hunan
  Bachelor of Engineering in Internet of Things Engineering — *Sept. 2020 – June 2024*
  - **Achievements**: Top 3% in class.

Professional Skills

- **Embedded Development Expertise**: Proficient in using **C/C++** for embedded system development with good coding practices.
- **Hardware and System Design**: Experienced in development with **ARM-series MCUs** (e.g., STM32), hardware circuit design, and PCB layout, with the ability to architect both software and hardware for control systems.
- **Peripheral Interfaces**: Advanced knowledge of **UART/I2C/SPI/CAN/DMA** peripherals, with expertise in developing embedded real-time operating systems based on **FreeRTOS/Linux**.
- **Linux Development**: Skilled in **Linux** driver development, character device programming, and multi-threading/multi-process programming (e.g., shared memory, semaphores, pipes, message queues).
- **Communication Protocols**: Familiar with common communication protocols (e.g., **HTTP, TCP/UDP, IP**) and experienced in developing network communication modules.
- **Auxiliary Development**: Proficient in **Python** and **Shell scripting** for auxiliary development, with basic knowledge of the **Qt** graphical development framework.
- **Toolchains and Version Control**: Familiar with building toolchains (e.g., **Makefile, CMake**) and experienced in using **GIT** for version control in enterprise-level project workflows.

Awards and Honors

- **Second Prize at the 16th National College Student Electronic Design Contest**: *Team leader; Responsible for hardware development and algorithm design.*
- **Second Prize in the 2025 Huawei Software Elite Regional Challenge**: Achieved Huawei Machine Test Green Pass.

Internship Experience

- **Jingjia Microelectronics Co., Ltd.** — Changsha, Hunan
  Embedded Software Development (BSP Focus) — *Nov. 2023 – Aug. 2024*
  - **Video Driver Module Development (System Architecture: MCU + FPGA)**: Implemented **EXMC interface** communication between MCU and FPGA for register read/write operations. Developed video signal output and switching functionality controlled by the MCU. Designed and implemented **OSD (On-Screen Display)** multi-level menu functionality, supporting dynamic UI updates and multi-language switching.

- **OEM Embedded Platform Development (System Architecture: Phytium D2000 + FPGA + MCU)**: Ported **FreeRTOS** to the MCU, achieving task scheduling and system real-time performance. Adapted the open-source framework **Letter-Shell** for MCU Shell debugging. Developed driver modules for peripherals such as **ADC/I2C/WDG/UART** and collaborated with the hardware team to optimize BSP layer driver code for high-speed peripherals like **Aurora** and **SRIO**.
- **Auxiliary Board Development**: Completed **GPIO/SPI** peripheral development for MCU control of chips like **AD5668**. Developed an **I2C communication protocol parsing module** for efficient data exchange between the mainboard and auxiliary board.
- **Key Achievements**: Received a **30% pay raise** during the internship period. Recognized as an **outstanding intern** and ranked among top performers.

Project Experience

- **Unmanned Aerial Vehicle (UAV) Project** National College Contest
  Embedded Development and YOLO Algorithm Deployment *Sept. 2022 – Aug. 2023*
  - **Flight Control Logic Optimization**: Resolved speed control logic flaws in the anonymous flight control platform' s underlying code, ensuring stable programmatic control.
  - **Architecture Design**: Structured the UAV control task framework, enhancing code reusability and maintainability.
  - **Embedded Communication and Control**: Parsed recognition data from YOLO model on **Jetson Nano** via UART for UAV cruise tracking using **position PID algorithms**. Integrated **low-pass filtering algorithms** for precise hovering control above targeted fire sources.
  - **Intelligent Recognition Deployment**: Deployed the **YOLOv5 model** on Jetson Nano for real-time dynamic fire detection, incorporating error-detection logic to prevent false sensor detections.
  - **High Robustness Design**: Designed a failure detection and scheduling mechanism to enhance system fault-handling, improving safety and reliability in operation.
  - **Key Achievement**: Won the **Second Prize** at the 16th National College Student Electronic Design Contest.

Self-Evaluation

- **Professional Aspirations**: Proactive and detail-oriented with strong execution abilities; passionate about embedded systems development, real-time OS, and hardware debugging optimization.
- **Analytical Skills**: Excellent problem-solving skills, excelling in multi-task development environments.
- **Communication and Teamwork**: Strong collaboration capabilities, effectively managing development requirements to ensure timely, high-quality project delivery.