JIE TANG

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SKILLS

Programming Languages and Frameworks
C/C++, Assembler, Python, JavaScript, Shell, Matlab, Java, SQL, Qt/QML, ARM, Android, RTOS(FreeRTOS and RThread), Embedded Linux (kernel driver and application)
Software and Tools
Simulink, Docker, CubeMX, Keil, Git, Makefile/CMake, Yocto, Buildroot, and GNU Toolchain
Background knowledge
Control Theory, Data Structures, Signal Processing, Circuit Design, Embedded System, Digital Communication, Multi-thread/Parallel Computing, TCP/IP, Serial Interface(UART, I2C, SPI, RS485)
Libraries
Eigen, OpenCV, CUDA C/C++, POSIX, libmodbus

WORK EXPERIENCE

1. **Tech Lead/Embedded Software Developer**, Accuenergy Canada Inc.   *Aug.2020- Now*

   - Development drivers and applicants within both Linux and bare metal framework
   - Design Qt/QML based GUI on both Windows and Linux platform
   - Design and validate of new embedded architecture and platform.
   - Design production procedure and develop utility software for production team

   - Power Quality Meter (FPGA + NXP i.MX 8MN Cortex-A53 + NXP i.MX 6UL Cortex-A7)

   It is a high-end AC power meter, which consist of two parts: a detachable display module and a meter body.

   - Ported BSP(**Yocto**) and drivers(**Linux kernel**) for the Display Module(NXP i.MX 8MN), which include **PMIC, eMMC, PHY, MIPI to RGB converter(DRM bridge), touch screen, USB**, and related libraries/toolchain.
   - Developed the UI application based on Qt/QML, which uses weston backend, RESTful API, Websocket and Modbus TCP.
   - Ported BSP(Yocto) and drivers for the Meter Body (NXP i.MX 6UL and FPGA), includes DDR, eMMC, SPI, I2C, RS485, PHY, RTC, DSP(ADI BF609), FPGA, and related libraries/toolchain.

   - DC-EV Meter (STM32H750 Cortex-M7 + NXP i.MX 6UL Cortex-A7)

   - STM32 chips configure with CuteMX. Ported FreeRTOS and Lwip TCP on STM32H750
   - Develop different applications based on baremetal and OS based System.

   - Production and Utility Software

   - To improve the efficiency, designed new production process and developed Desktop UI applications(Qt/C++) for parallel flashing, configuration, and testing (for different platform Jlink API and libusb are used).
   - Design UI software for customer to read meter data and configure the meter setting.

2. **Teaching Assistant**, University of Windsor   *Jun.2017- May.2019*

   - Teaching assistant of 'Control systems' and 'Industry Control'
   - Organized the laboratory experiments and give tutorials.

3. **Researching Assistant**, University of Windsor   *Sep. 2016- Dec.2019*

   - Control of Multi-agent system by using visual sensor.
   - LQG (LQR+Kalman filter)& H∞ combined control of the nonlinear system.
   - Lidar performance regulation using Extremum Seeking Control (ESC).

4. **Telecommunications Engineer − Intern**, ZTE Corporation   *Jan. 2016- Feb.2016*
   Configurtion of Passive Optical Network(PON) in Metropolitan Area Network and Access Network

EDUCATION

University of Windsor. MASc, Windsor, Canada   *Sep.2017 - May.2020*
Electrical Engineering (Robotic and Advanced Control)   GPA: %91.5

North China Electric Power University. BEng, Beijing, China   *Sep.2012 - Sep.2016*
Electrical and Computer Engineering   GPA: %82.3

PERSONAL PROJECTS

ROS and Pixhawk based Autonomous flight control   *May. 2017- Jan.2018*
-Developed an autonomous flight control system with Nvidia Jetson TX2 (high level controller) and pixhawk (low-level controller) by using MAVROS.

Multi-robot visual formation control (Master Thesis*)   *March. 2018- May.2019*
-Designed a formation control system allowed robots to keep a special pattern during moving, meanwhile, all the robots are in a visible zone(inside in the camera's Field of View) of others. video at https://youtu.be/5x1tOIw7TJc. codes at https://github.com/Alvintang6/robot_formation.

Robust control of the inverted pendulum   *March. 2019- May.2019*
-Designed a system to validate a new control structure which uses classical LQG controller for inner loop and H∞ contorller for outer loop to improve the robustness of system — the system can resist much larger disturbance from environments. video at https://youtu.be/ZyAGczXnCfk

PUBLICATION

IEEE Transactions on Control Systems Technology   IF 5.9   *May 16, 2022*

Task-Driven Formation of Nonholonomic Vehicles with Communication Constraints