

Kevin (Xiankang) Yu

Electrical & Electronic Engineering (Honours)

EMBEDDED SYSTEMS • POWER ELECTRONICS • PCB DESIGN • WORKBENCH INSTRUMENTATION

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SCAN FOR LAB & DEMOS

PROFESSIONAL SUMMARY

High-achieving **Electrical and Electronic Engineering (Honours)** student at the University of the Sunshine Coast (UniSC) with a **6.05 / 7.00 Cumulative GPA** (High Distinction in DSP, Applied Mathematics, Engineering Statics, Linear Algebra, and Interactive Modelling). Combines strong theoretical foundation with hands-on workbench capabilities: multi-layer PCB design, switch-mode power supplies (180V Boost, ATX DC UPS), programmable laboratory loads (300W MOSFET with PID regulation), and precision current sensing (INA190A1 + Rigol DSO). Experienced in enterprise IT helpdesk, component-level repair, and interactive STEM youth outreach. Fluent in English, Mandarin, and Cantonese. Holds a full Australian Open Driver's License.

EDUCATION

Bachelor of Engineering (Electrical and Electronic) (Honours)

Jul 2023 – Nov 2027 (Expected)

The University of the Sunshine Coast (UniSC) • Queensland, Australia

Cumulative GPA: 6.05 / 7.00

Key Academic Achievements: Engineering Statics (**94 HD**), Calculus II & Linear Algebra (**93 HD**), Applied Mathematics (**90 HD**), Physics (**88 HD**), Digital Signal Processing (**88 HD**), Interactive Modelling & Computer Apps (**87 HD**), Internet of Things (**87 HD**), Analog & Digital Electronics (**86 HD**), Digital Logic & Programming (**86 HD**).

New Zealand Diploma in Engineering (Electrical and Electronic)

Jul 2018 – Dec 2019

NorthTec • Whangarei, New Zealand

TECHNICAL COMPETENCIES

HARDWARE & PCB DESIGN

Altium Designer, Schematic, Multi-Layer PCB Layout, SMD Solder.

EMBEDDED SYSTEMS & PROGRAMMING

C, C++, Python, STM32, RTOS, GUI, I2C, SPI, UART, Control System.

FEATURED ENGINEERING PROJECTS

STM32 IoT Nixie Tube Clock (180V Boost DC-DC)

STM32 • QS-30 • 180V DC Boost

High-Voltage SMPS • STM32 ARM Cortex-M • Acoustic Threshold Mic • Wi-Fi NTP

- Designed and tuned a dedicated DC-DC boost power supply stepping 12V DC input up to **180V DC** with active safety current-limiting to drive Soviet QS-30 neon nixie tubes.
- Engineered an onboard acoustic microphone circuit: display stays dormant and dynamically wakes only when ambient noise exceeds a threshold, conserving energy and significantly extending tube lifespan.
- Integrated STM32 ARM Cortex-M architecture with a DS3231 hardware RTC (CR2032 coin cell backup) and ESP Wi-Fi module for automatic NTP time synchronization and smartphone web portal controls.
- Routed custom 2-layer PCB in EDA, hand-soldered SMD/through-hole components, and fabricated a custom 3D-printed enclosure with heat venting channels.

ATX Specification DC UPS (180W Computer Backup)

180W Continuous • Zero-Latency • USB GUI

Power Systems • 0ms Glitchless Transition • Multi-Rail Sensing • 4S Li-ion BMS

- Engineered an uninterruptible DC-to-DC power supply strictly compliant with the ATX power supply specification (+12V, +5V, +3.3V, +5VSB rails, and proper Power Good assertion) delivering up to **180W continuous output**.
- Achieved **0ms latency glitch-free power path switchover** from AC adapter to 4S Li-ion battery pack, preventing PC reset or brownouts during power dropouts.
- Implemented high-precision 3-rail current and voltage telemetry alongside comprehensive multi-level safety protections (ACOV, ACOC, CHGOCP, BATOV, short-circuit, and thermal shutdown).
- Reinforced high-current PCB power traces with hand-soldered heavy copper busbars and XT60 connectors to minimize I²R losses; developed PC host management software over USB.

FEATURED ENGINEERING PROJECTS (CONT.)

300W MOSFET Programmable Electronic Load

300W Capacity • 4x Power MOSFETs • PID

Power Electronics • Closed-Loop PID Current Control • LVGL Embedded GUI • USB Telemetry

- Engineered a **300W continuous programmable electronic load** instrument utilizing 4 parallel linear-mode power MOSFETs mounted to a server CPU heatsink tower with individual current shunt feedback and thermal balancing.
- Developed a high-speed closed-loop **PID current regulation algorithm** in C, eliminating overshoot and settling within microseconds to evaluate power supply transient step responses on an oscilloscope.
- Integrated a 3.5-inch color display powered by the **LVGL embedded graphics library** with rotary encoder controls, displaying live voltage, current, power, and heatsink temperature.
- Implemented intelligent closed-loop fan speed regulation and bi-directional USB communication with dedicated PC host software for automated load profiling and data logging.

RigolScope-Webview: Oscilloscope Precision Current Meter

TI INA190A1 • Rigol DSO • Real-Time Charting

Precision Measurement • INA190A1 Sensing PCB • SCPI / USBTMC • Webview GUI

- Architected an instrumentation system for capturing micro-current transients and dynamic power profiles; designed custom sampling PCB utilizing Texas Instruments **INA190A1** precision current sense amplifier.
- Automated SCPI protocol communication with a **Rigol DS1152E oscilloscope** over USBTMC to stream high-frequency digitized voltage waveform data to PC.
- Developed a modern PC host webview interface displaying real-time current waveforms, average/peak current calculations, and configurable timebases, gain ranges, and trigger thresholds.

WORK & PROFESSIONAL EXPERIENCE

Customer Service & Hardware Technician

Feb 2025 – Feb 2026

Leon's Tech • Queensland, Australia

- Provided front-of-house diagnostics and component-level repairs for computers, laptops, and consumer electronic devices in a high-volume retail technical environment.
- Translated complex hardware failure modes and repair solutions into clear, accessible terms for multicultural customers in English and Mandarin; managed walk-in repair queues during peak hours.

STEM Presenter & Workshop Facilitator

Jul 2024 – Dec 2025

Mind-SET do, UniSC • Queensland, Australia

- Delivered interactive STEM workshops in electronics, breadboard prototyping, and robotics to primary and high school students across regional Queensland.
- Adapted technical demonstrations to diverse youth cohorts, successfully fostering curiosity and engagement in engineering fields.

Event Organizer & Student Representative

Aug 2024 – Dec 2025

GDC, University of the Sunshine Coast (UniSC)

- Organized academic and networking events, coordinating guest speaker schedules, venue logistics, and marketing collateral for student-led engineering initiatives.

Senior IT Helpdesk Specialist (Tier 1 & Tier 2)

Jan 2022 – Jun 2023

SITEL Group

- Delivered technical support resolving hardware, software, and local area network connectivity issues for 200+ enterprise users; administered server room switches, patch panels, and UPS units.
- Authored standardized SOP documentation and troubleshooting knowledge-base guides for regional IT onboarding.

Network Systems Engineer

Jul 2021 – Dec 2021

DaZhong Ltd. (Enterprise Systems Integration)

- Deployed and configured enterprise switches, routers, and firewalls (Cisco, Fortinet, Huawei); planned structured cabling and integrated security CCTV systems.

Hardware Benchmarking Assistant

Feb 2020 – Dec 2020

Tech Media Studio (500,000+ Subscribers)

- Built and maintained test benches for benchmarking desktop CPUs, GPUs, and thermal dissipation; fabricated custom mounting adapters using CAD modeling and 3D printing.