

Jonas Ryan Charles

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SUMMARY

Electrical & Electronic Engineering (Honours) student at the University of Adelaide specialising in analog circuit design, semiconductor devices, and embedded systems. Presented conference research on FinFET/GaN FET biosensors; hands-on with Cadence Virtuoso, Synopsys and Silvaco TCAD, KiCad, and LTspice. Seeking an electrical engineering internship to apply device modelling, PCB design, and microcontroller skills to real hardware.

EDUCATION

University of Adelaide — Adelaide, SA

B.Eng (Honours), Electrical & Electronic Engineering | Jul 2025 – Dec 2027 (expected)

Vellore Institute of Technology (VIT), Chennai — Chennai, India

B.Tech, Electronics & Communication Engineering | Aug 2023 – Jul 2025 (transferred to University of Adelaide)

RESEARCH & PROJECTS

FinFET & GaN FET Biosensor Research — International Conference on Multifunctional Materials

- Investigated FinFET and GaN FET device architectures for biosensing and high-frequency sensing applications using Synopsys and Silvaco TCAD, with emphasis on defect detection; presented findings at the International Conference on Multifunctional Materials.
- Modelled the impact of gate scaling on key sensing parameters, quantifying the sensitivity-versus-noise trade-off to guide device sizing for biosensing performance.

Secure Messaging System — Dynamic XOR + Morse Encryption (AT89S52)

- Designed a lightweight dual-layer encryption scheme combining dynamic XOR keying with Morse encoding, targeted at resource-constrained embedded hardware.
- Implemented and validated the full system on an AT89S52 (8051-class) microcontroller, achieving reliable low-overhead secure messaging on 8-bit hardware.

TCAD Nanosensor Sensitivity Study — IEEE Photonics Society (Core Team)

- Contributed TCAD-based device simulations toward biosensor designs aimed at improving nanosensor sensitivity; participated in research webinars on quantum computing and semiconductor methodologies.

TECHNICAL SKILLS

Programming & HDL: Python, Java, SystemVerilog, VHDL, Assembly

EDA & Simulation: Cadence Virtuoso, Synopsys TCAD, Silvaco TCAD, LTspice, MATLAB, KiCad

Electronics: Analog Circuit Design, PCB Design, Semiconductor Device Modelling, Microcontrollers, Antenna Design & Fabrication

Automation & Tools: PLC Programming, Siemens Automation, Electrical Costing (Revit), Git/GitHub, Postman, Figma

WORK EXPERIENCE

Trident Gold — Roof & Gutter Technician | Adelaide, SA

Senior Technician (Mar 2026 – Present); Level 1 Technician (Aug 2025 – Mar 2026)

- Promoted to Senior Technician within 8 months; supervise site tasks, coordinate daily work activities, and mentor newer technicians on task planning, equipment handling, and safe work practices.
- Perform inspections, maintenance, and repairs at height under strict safety procedures (SWMS, PPE, hazard identification and reporting) — zero safety incidents.

Goodman Fielder — Production Worker | Adelaide, SA | Oct 2025 – Present

- Support Line 1 bakehouse operations in a fast-paced manufacturing environment: production flow, quality checks, and food-safety compliance.

LEADERSHIP & ACTIVITIES

BAND-VIT — Event Coordinator | Chennai, India

- Coordinated a one-day gaming event with 900+ participants, achieving 300% ROI through sponsorship planning and cross-team coordination.

LICENSES & CERTIFICATIONS

White Card | Working at Heights | Working in Confined Space | First Aid & CPR | Working with Children Check

References available on request.