Tanguy Perron

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I am a postgraduate student at Imperial College London in Innovation Design Engineering (MSc/MA) with a background in Electronics and Computer Engineering (MEng, First-class honours).

Education

Imperial College London & Royal College of Art — London, UK
MSc/MA in Innovation Design Engineering — *Sep. 2023 – Today*

- Expected to graduate in July 2025.
- Main modules studied: Design Fundamentals, Cyber-Physical Systems, Transdisciplinary Practices, Regenerative Materials Structures and Aesthetics, Human-Centred and Behavioural Design, Sustainable Systems.
- Optional module undertook: User Interfaces and Interactions.

Imperial College London — London, UK
MEng in Electronic and Information Engineering — *Oct. 2019 – Jun. 2023*

- Achieved First class honours.
- Main modules studied: Artificial Intelligence, Machine Learning & Deep Learning, Computer Vision, High-Level Programming, Operations Research, Robotics, Embedded Systems, Large-dimensional Data Processing, Distributed Ledgers, Privacy Engineering, Software Systems, Digital Electronics and Computer Architecture.
- Optional modules undertook: Collective Intelligence, Designing Interventions for Behavioural Change, Creative Digital Platforms, and Introduction to Psychology.

Lycée Blaise Pascal — Orsay, FR
French Scientific Baccalaureat with Further Maths — *Sep. 2016 – Jul. 2019*

- Achieved the Highest Honours with a score of 19.55/20 overall.
- Optional modules undertook: Spanish and Latin.

Experience

UI/UX Designer & Front-end Developer — Jul. 2022 - Aug. 2024
Villa Schmidt GmbH — *Remote*

- Worked as a UX/UI designer and front-end developer for a high-end furniture retailer based in Germany for 2 months as a contractor.
- Redesigned several key elements of their website, such as the landing page, product cards, product listings, search filters, product details page, product configurator, contact information section, header, footer and cookie banner (GDPR compliant).
- Implemented said front-end elements in the Nuxt3 framework using TypeScript in a fully reactive way to work seamlessly across all key devices used by their clients.

Full-stack and Cloud Developer — Jul. 2021 - Sep. 2021
UniVerse — *Remote*

- Worked as a Full Stack and Cloud Developer to build an application for Android, iOS and Web.
- Worked on both front and back-end components of the app, as well as on the design of the databases and DevOps.
- Programmed in Dart using the Flutter framework, with integration of Google Firebase services.
- Researched and produced reports on technologies that the company wished to adopt.
- Worked under the guidance of the company's CTO and also independently, relying on both my communication and team-working skills, as well as my autonomy.

Projects

Wave Generator - *MSc/MA Cyber-Physical Systems* | *C++, Arduino, Processing* Oct. 2024

- Mechatronics project designed and developed using Arduino, Processing and Wekinator (ML).
- Uses sound inputs recorded by Processing and sent to Wekinator for ML classification.
- An Arduino then actuates 4 servo-motors in unique patterns based on the class returned. Each servo controls 4 cams that lift wooden sticks in a third-class lever configuration to produce the desired wave effect.
- Uses OSC messages for communication between Processing and Wekinator, and UART serial communication between Processing and Arduino.

Computer vision for coffee cup collection - *MEng FYP* | *Python* Oct. 2022 - Jun. 2023

- Final Year Project for my Electronic and Information Engineering MEng degree. This project dealt with the implementation of a smart return kiosk for reusable coffee cups.
- Multiple software systems relying on external sensors were implemented in Python and integrated on a Raspberry Pi to ensure an efficient product robust to adversaries.
- Benchmarked 3 families of object detection architectures trained on a custom dataset.
- Designed and implemented a custom object tracking algorithm based on motion detection.
- Challenged all skills that I had acquired throughout my degree, ranging from hardware communication protocols to state-of-the-art machine learning models for object detection, all while deepening my understanding of embedded systems.

Music Synthesizer OS - *MEng Embedded Systems* | *C, C++, FreeRTOS* Mar. 2022

- Worked in a group of 4 to develop the Real-Time Operating System of a Music Synthesizer.
- The OS was written in C and C++ and uses Threads and Interrupts to execute concurrent tasks.
- Ensured safe access and synchronization of data, by relying on shared resources such as Mutexes, Atomic operations and Queues.
- Produced both a Real-Time Critical Analysis report to prove that all tasks would meet their deadlines, as well as a Dependency Graph to ensure no deadlocks in our implementation.

Mars Rover - *MEng Year 2 Project* | *C++, Arduino, ESP32 SoC* Jun. 2021

- Programmed an ESP32 SoC in Arduino C++ to communicate with 3 sub-systems.
- Used the MQTT protocol to communicate with a Web-App over WiFi to control the robot.
- Handled communications using the UART Protocol to both an FPGA (computer vision) and an Arduino Nano board (motors).
- Designed custom instruction sets to decode and interpret all commands from all sub-systems.
- Implemented a custom obstacle-avoidance system triggered by external sensors.
- Strong team-working skills and communication were required to coordinate with my 5 coworkers.

Technical skills

Natural Languages: English (bilingual), French (native), Spanish, German.

Programming Languages: Python, Dart, C/C++, Julia, F#, MatLab, Lua, Prolog, SystemVerilog.

Tools: Git, Docker, Flutter, ROS, FreeRTOS, Visual Studio, AdobeXD, Quartus, LTSpice, LaTeX.

Other achievements and Interests

Licenses and certifications: Driving License, TOEFL

Participations in national challenges: Kangaroo Challenge (Maths), "Animath" (Maths), "Concours Castor Informatique" (Programming), "Algoréa" (Programming).

Other interests: Tutoring, Photography, Digital Design, Drawing.

References available upon request