Alex TOUSSAINT

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Profile

I'm a highly motivated engineering student with a strong passion for robotics, electronics, and computer science. I thrive on taking initiative and tackling significant challenges.

Starting March 2024, I'm actively seeking a six-month internship.

You can explore my portfolio on my personal website www.alextoussaint.com

Education

CentraleSupélec (Paris-Saclay University)   **Gif-Sur-Yvette, France**
M.Sc.in Engineering, B. Sc. in Engineering   *2021-to present*

Relevant coursework: Statistics and Machine Learning, Control Theory, Fluid Mechanics, Electrical Engineering, Partial Derivative Equations, Algorithms and Computability, Communication Networks, Optimization Methods

Lycée Jean Baptiste Say   **Paris, France**
Preparatory Program for Top Graduate Schools   *2019-2021*

Intensive and advanced two-year program in Maths, Physics, Chemistry and Engineering

Lycée Louis Armand   **Eaubonne, France**
High school diploma with highest honors   *2019*

Experience

MBDA Systems   **Plessis-Robinson, France**
Guidance, Navigation and Control Intern   *Sept. 2023 - Feb. 2024*

Implementation and tuning of a digital sensor fusion filter for aerial navigation

SBCS   **Gif-sur-Yvette, France**
Treasurer   *2022-2023*

SBCS is CentraleSupelec's sound and light student association. We made around 215k€ on a one-year period organizing events for other schools. I automated most of the accounting, led multiple events and developed an **ERP software** for our use-case now used routinely

Kaktana.com   **Paris, France**
Co-founder   *2018-2021*

Co-founded and built kaktana.com, a successful cryptocurrency-trading bot platform where users can create their own trading strategies with an easy-to-use no-code editor. (**React, Django, Go, AWS Lambda, Linux Servers, Docker Swarm, Git**)

Ermont's Robotics Club   *2019-2021*

I was in charge of the club. I taught kids and teenagers Arduino programming and electronics

Freelance   **Eaubonne, France**
Trading strategies developer   *2019-2021*

Implemented python trading strategies for clients using a custom trading engine that I built

Personal projects

3D Ultrasonic Scanner   *2021-2023*

I invented a **3D ultrasonic scanner** working in the air with a phased-array transceiver. The project was featured on hackaday.com and made it to the front page of HackerNews. (**C/C++ bare-metal programming, High-Speed digital PCB design (KiCAD), Signal Processing, 3D visualization, FPGA (Verilog)**)

Quadcopter drone from scratch   *2016-2023*

Designed a quadcopter drone from scratch with my own machined carbon fiber frame, electronic flight control board and flight software. I built my own 6DOF mechanics simulation in C to fine-tune PID gains. (**C, PID controller, alpha-beta filters, electronics and sensors**)

French National Engineering Competition   *2019*

Designed and built a robotic arm that was controlled by both an **electrocardiogram and computer vision**. The arm was able to locate and grasp a ball using brain ECG signals and stereo-vision cameras to guide its movement. (**DSP, power electronics, OpenCV**)

High-Altitude Balloon   *2018*

Built a high-altitude balloon (27km) with friends using a custom PCB for data logging. We logged a lot of very interesting data, notably around sound wave progression in near-space and heat dissipation of electronics.(**Electronics, data logging and visualization**)

Skills

Programming: C, C++, Python, Javascript, Django, React, Go, Verilog, Java, Nim, Git, OpenCV, Scikit-Learn

Languages: Fluent English, Native French

Hobbies

Programming, Swimming, Running and Scuba Diving, Model airplane building