FLORIAN BREUT

Embedded Software Engineer

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SUMMARY

With 9 years of experience in the Aerospace industry, I have developed a practical skill set in Firmware programming, flight controllers, and flight simulation development. My contributions have been instrumental in the success of Airspeeder racing vehicles over the past 3 years.

PROFESSIONAL EXPERIENCE

Lead Embedded System Engineer

Airspeeder — 01/2022 - Ongoing — Adelaide, SA

- Lead C/C++ Firmware development for the Airspeeder Mk3 flight controller and Flight management system
- Program ARM Cortex-M microcontrollers to integrate pilot HMI and Joysticks for the future MKM Crewed vehicle
- Implement custom stm32 USB device to interface a simulator PC with a real vehicle CAN bus and aircraft inceptors.
- Design and implement the telemetry and race control system for the EXA racing Series in collaboration with Telstra Purple teams
- Create test cards and supervise flight tests for system validation
- Process and analyse telemetry data to improve vehicle performance

Embedded Software Engineer

Airspeeder — 08/2020 - 01/2022 — Toulouse, FR (WFH) & Adelaide, SA

- Assisted with design and development of new Firmware for flight controls including Kalman Filter Estimator configuration, flight modes and PID tuning
- Designed, Engineered and Tested an Unreal Engine flight simulation
- Contributed to the mechanical assembly and firmware deployment of vehicles
- Performed research studies and IP creation around an integrated Collision Avoidance System with cooperative and non-cooperative modes
- As a proof of concept, trained in AWS Cloud with Nvidia TAO a Neural Network based object detection algorithm for the collision avoidance system

System Engineer

Dassault Aviation — 10/2014 - 08/2020 — Saint-Cloud, FR

- Lead the full SDLC of a C++ technical simulation critical to the RAFALE F3R fighter jet export success and FCAS drone preliminary design studies
- Developed state of the art Artificial Intelligence Algorithms for Autonomous Systems and cooperative missions
- Conducted CONOPS and Operational Studies for Air-to-Air missions
- Developed R/Matlab data analysis and visualization tools for Monte-Carlo simulation results
- Contributed to the IVVQ of new operational functions (simulation/iron bird)

Signal Processing Engineer (Intern)

Department of Defence — 2014 - 2014 — Paris, FR

- Developed estimation algorithms for remote sensor systems
- Implemented Extended Kalman Filters and Particle Filters for trajectory estimation

Simulation Engineer (intern)

MBDA — 2013 - 2013 — Le Plessis-Robinson, FR

- Modeled missile physics and control system
- Programmed Matlab/Simulink libraries for sensor processing and optimization

EDUCATION

Master Degree in Mechatronics

INSA — 2009 - 2014 — Strasbourg, FR

Computer Science Program

KAIST — 07/2014 - 12/2014 — Daejeon, KR

Data Science Professional Certificate

IBM — 02/2021 - 07/2021 — coursera.org

ACHIEVEMENTS

Airspeeder Race Control System

The telemetry system of the Mk3C Aircraft is now supporting live data monitoring for engineering analysis, safety, and enables Race events

Innovative VTOL Patents

I contributed to the Airspeeder IP writing 4 patents : Controlling Manned VTOL Aerial Vehicles, System infrastructure integrated with manned VTOL, Collision avoidance for manned VTOL, Manned VTOL navigation

French Standard for Operational Simulation

My team's simulation has become the standard tool utilized by Dassault Aviation and the French Air Force for critical operation studies involving drone concepts, military aircraft missions, and system of systems.

SKILLS

Programming

C/C++ | Python | Matlab | Simulink | Git | stm32 | RTOS | UART | CAN | I2C | SPI | SBUS | VSCode | Linux

Control Systems

Kalman Filter | PID tuning | Particle Filter

LANGUAGES

French	Native ●●●●●
English	Proficient ●●●●○
Spanish	Advanced ●●●○○

OTHER PROJECTS

GPT-3 API

01/2023 - Ongoing — RapidAPI.com

Developed a Natural Language Processing API as a low-cost alternative to ChatGPT

- Packaged software as a Python Rest API
- Reached 1k users in 2 months

REFERENCES

Henri Nicolas, CTO, Airspeeder

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