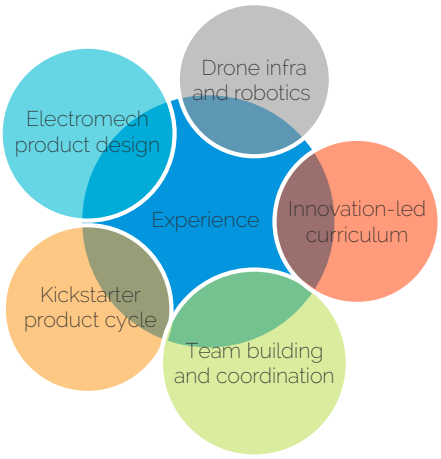
Thomas Carstens

Seeking internship from April to August 2021

Portfolio: Click here
Email: Click here



ELECTROMECHANICS

Coursework in UCT Bachelors

Sys design	LabVIEW
Numerical modelling	Python, Matlab MathCAD
Control testing	SimulC
Microcontrollers	STM32, Arduino PIC24, RPi
CAM	Solidworks
Circuit Design	LTSpiceVI

DRONE DEVELOPMENT

Specialisation in ESILV Masters

Drone framework	Crazyflie
Motion capture '	Optitrack
Autonomy ' software	Python C++ with ROS
Simulation training	Unity3D Gazebo

SOFTWARE DEVELOPMENT

Lately using Linux & Python

General	Linux cmd tools Python, C++, C# (novice) Assembly
Web	Firebase database HTML, CSS, Typescript Ionic with Angular
VCS	Git

EDUCATION

ESILV SCHOOL OF ENGINEERING | Masters 2: Innovation Lab

2020-Current, De Vinci Innovation Center | Paris, France

- Part of a transdisciplinary innovation lab in Paris
- Masters in Innovation, Research and Manufacturing
- Founded a lab about developing intelligence on drones

EFREI SCHOOL OF ENGINEERING | Masters 1: Robotic systems

2019-2020 | Paris, France

UNIVERSITY OF CAPE TOWN | BSc. Mech & Mechatronic Eng

2015-2018 | Cape Town, South Africa

EXPERIENCE

LEADING THE DRONE LAB | Founder

November 2020 - March 2021 | De Vinci Innovation Center, Paris

The Intelligent Drone Lab explores ways to innovate using drone tech. I set up this lab for Masters students at the DVIC and we now have external collaborations. Here are some of the initiatives I took to build the lab.

- Maintaining the lab's infrastructure (buying equipment, hardware repairs, workspace management, drone test procedures).
- Organising different skillsets for students and coordinating the projects.
- Documenting our projects on the DVIC's website.

DRONE DEVELOPMENT | Internship in Innovation Lab

April - August 2020 | De Vinci Innovation Center, Paris

I was required to set up the robotics cluster at the DVIC.

- Selecting drones, setting up a flight arena and a tracking solution.
- Hands-on testing of a drone swarm solution.

MOBILE APP DEVELOPMENT | Bachelors Research Project

Feb – Oct 2018 | Mechanical Engineering Department, UCT

UCT is innovating alternative methods of knowledge transfer for undergraduate education. I proposed to research new strategies for 2 undergraduate courses.

- I designed a mobile app for students to contact their tutors off-hours.
- I developed the app in accordance with feedback from course members.
- Frontend and backend development (see skills alongside).

ACADEMIC TUTORING | At Cape Town Tutors & Teach Me 2

Feb 2016 - Aug 2019 | Cape Town

Tutoring students in their high school coursework (upwards of 200 hours).

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PORTFOLIO PROJECTS

Full Portfolio: dvic.devinci.fr/en/resource/members/thomas_carstens

INTERACTIVE DRONE PERFORMANCE | Project Lead
Aug 2020 - Jan 2021 | T. Carstens, A. Rahal | DVIC
Choreography of drones guided by human hands and other interactions. University article recently reviewed the project.

VIRTUAL-TO-REAL TRAINING GROUND | Project Lead
Aug 2020 - Jan 2021 | T. Carstens, M. Frossard | DVIC
Flight planning algorithms tested on real drones via a simulated camera feed. More navigation solutions to be developed with this pipeline.

REMOTE MONITORING OF A DRONE FLEET | Project Lead
Aug 2020 - Jan 2021 | T. Carstens, B. Dufaure | DVIC
Robust safety measures for irregularities in drone flight. Our drone swarm solution reused in theater production: see news section.

STUDENT-TUTOR MOBILE APP | Developer and Coordinator
Feb – Oct 2018 | Dr. Bruce Kloot, T. Carstens | UCT
Mobile application for tutoring in 2 undergraduate engineering courses. Used regularly by students during the study.

CURRENT

KICKSTARTER CROWDFUNDING | Design and manufacture
October 2020 - August 2021 | Juldo, Julou, Vinet, Carstens | DVIC
Commercialising "Graph-it", an analog task tracker. Kickstarter at 350% of initial goal by the end of the campaign.

CURRENT MOOC COURSEWORK | Student
2021, Thomas Carstens | DVIC

Udacity	Flying Cars Engineer	on the drone autonomy stack
Udacity	Self-Driving Cars Engineer	on the car perception stack
Udacity	Sensor Fusion Engineer	on sensor integration for robots

REINFORCEMENT LEARNING ON DRONE SWARMS | DVIC
A few state-of-the-art research papers I am considering replicating.

Sept 2020	Decentralized Control of Multi-Robot System in Cooperative Object Transportation Using Deep Reinforcement Learning
May 2020	Neural-swarm: Decentralized close-proximity multirotor control using learned interactions

INTERESTS

- 24 years old
- English (mother tongue)
- French (bilingual)
- Espagnol (level C2)
- FPV Drone adventures
- Electronic music
- Trail running
- Meeting new people
- Coffee
- Cutting edge tech
- Envisioning the future

AWARDS

2021	Top Marks in Masters at IRM
2018	Cum Laude (Honours) distinction in Engineering
2017	Dean's Merit List (2015-2017)

NEWS OF DRONE LAB

2020	Tutorials on drone ecosystem published on DVIC website.
	Link to tutorials
13/1/21	University article published on Intelligent Drone Lab.
	Link to article
15/2/21	Setting up a collaboration with contemporary dance piece performed in Brunoy, France in August 2021
03/4/21	Film Shoot of Drone Lab with newspaper Le Monde