Thomas Carstens
Seeking part-time employment

Portfolio: https://thomascarstens.github.io
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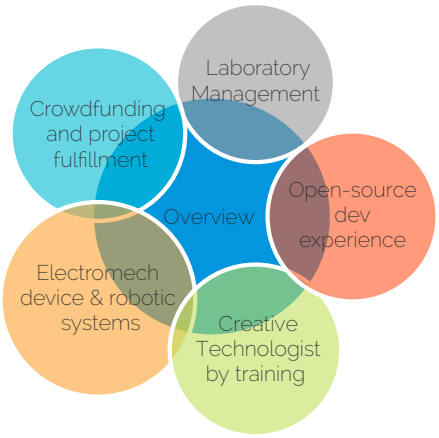

A recent graduate with a jack of all trades approach. I enjoy to interact with different sectors of a company. Through Creative Technologist studies, I seek to understand company sectors and methodologies, while bringing in new technologies and external collaborations.

I value a balance between my personal projects and company work. I am working on an online course I started during my studies, and in this process I seek part-time work to cover my expenses. I have proven to approach company work in a well-disciplined and communicative way, especially when goals are well-defined.

ELECTROMECHANICS
Coursework in UCT Bachelors

Sys design	LabVIEW
Numerical modelling	Python, Matlab
	MathCAD
Control testing	SimulC
Microcontrollers	STM32, Arduino
CAM	Solidworks

DRONE DEVELOPMENT
Laboratory Workspace

Drone framework	Crazyflie
Motion capture	Optitrack
Development environment	Python
	C++ with ROS
Simulation training	Unity3D
	Gazebo

SOFTWARE DEVELOPMENT
Frequently Used Tools

General	Linux tools
	Python, C, C++
	Assembly
Web	Firebase
	HTML, CSS, Typescript
	Ionic with Angular
VCS	Git

EDUCATION

ESILV ENGINEERING SCHOOL | Creative Technologist Eng
2020- Feb 2022, De Vinci Innovation Center | Paris, France

- Masters in Paris's MIT-led innovation lab
- Where I founded the Drone Intelligent Flight Laboratory
- Thesis: Intelligent Systems for Next Gen Drone Functionality (top mark)

UNIVERSITY OF CAPE TOWN | BSc. Mech & Mechatronic Eng
2015-2018 | Cape Town, South Africa

- Bachelors in the top university in Africa
- Effective Altruism Society UCT: Community Building initiatives.

EXPERIENCE

EMBEDDED SYSTEMS | Intern in AllianTech R&D Dept
March - September 2021 | Paris, France

I interned in a sensor design and development firm. We designed a range of mobile sensor solutions onboard Unmanned Vehicles.

- Built a custom atmosphere drone solution and one for vibration sensing
- With embedded systems, flight management, data analysis and demoes

DRONE LABORATORY MANAGEMENT | Student-Led Lab
March 2020 - September 2021 | De Vinci Innovation Center, Paris

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.

- Setting up a Flight Arena. Development of drone swarm functionality.
- Coordinating student projects, workspace management, equipment purchase and repair.

REMOTE LEARNING SOLUTION | Bachelors Research Project
Feb – Oct 2018 | Mechanical Engineering Department, UCT

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

- I designed & developed a mobile app to contact course tutors off-hours.
- I engaged course members to guide the app's development.

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SELECTION OF TECH PROJECTS

Full Portfolio: https://thomascarstens.github.io

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.

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

VIRTUAL-TO-REAL TRAINING GROUND | Scenario testing
Aug 2020 - Jan 2021 | Project Lead, with M. Frossard | DVIC
Flight planning algorithms tested on real drones via a simulated camera feed. Our pipeline helps to quickly prototype navigation solutions.

STUDENT-TUTOR MOBILE APP | Community platform
Feb – Oct 2018 | Project Coordinator, supervisor: Dr. Bruce Kloot | UCT
Mobile application for tutoring in 2 undergraduate engineering courses. Used regularly by students during the study.

CURRENT

HIGH TECH COURSES | MOOC Courses
A few courses I am learning from.

Youtube	Introduction to Solidity
Fabrication	CNC 4-axis: doing wood and metal designs

EXPLORING EMBODIED INTELLIGENCE | Some Tinkering
A few technologies I am tinkering with.

W. Hoenig	Reinforcement Learning for learned interactions in a decentralized drone swarm
A. Guerra	Trajectory generation based on camera input in a simulated environment.
Udacity	Flying Cars
Udacity	Self-Driving Cars
Udacity	Sensor Fusion

ABOUT

- 25 years old
- Jack of all trades approach
- English (mother tongue)
- French (bilingual)
- Spanish (proficient)
- Interest in high-tech & deep-tech
- Thesis on embodied intelligence

NEWS OF DRONE LAB

13/01/21	University online article on Intelligent Drone Lab.
	Link to article
15/02/21	Setting up a collaboration with contemporary dance piece performed in Brunoy, France in August 2021
03/04/21	Film Shoot of Drone Lab with newspaper Le Monde
01/12/21	Thesis finalised: "Intelligent Systems for Next Generation Drone Functionality".
	[Supplied upon request]

AWARDS

2021	Top Marks in Masters at IRM
2018	Cum Laude (Honours) distinction in Engineering & Valedictory Speaker
2014	Top Matric Marks & Valedictory Speaker