Matteo Trombini trombinimatteo@gmail.com

matteotrombini.com
in/trombinimatteo
github.com/mt4g16

Education

MEng Aeronautics and Astronautics *with placement year*

September 2017 – July 2022

University of Southampton, Southampton (UK)

Expected 2:1 degree classification

- Aerothermodynamics
- Aerospace Control Design
- Materials and Structures
- Astronautics
- Machine Learning
- Advd Computational Methods
- Systems Design & Computing
- Propulsion

Covered the **fundamentals of engineering and manufacturing processes**, as well as the **principles of aerodynamics** and air/space craft propulsion. Third year modules included advanced topics such as aerothermodynamics, control systems, and aircraft structural design. Additionally, I completed my **undergraduate dissertation**, where I designed and developed an automated flight-testing protocol for fixed-wing aircraft (further information in *Projects* section below) – achieving a **high mark of 69%.** I focused heavily on programming, mainly in **Python**, and applying it to most projects whenever possible – examples on website.

International Baccalaureate Diploma

August 2014 – June 2016

Zurich International School, Zurich (Switzerland)

Unweighted 3.6 GPA and honours

Experience

References available upon request

Core Testing Team Manager at *Wingtra*

April 2021 – May 2021

Wingtra AG (Zurich, Switzerland)

- Managing a team of 5 testers, scheduling and organizing their timetable
- Writing testing protocols and **determining release critical issues**
- Coordinating with software developers regarding bugs that need retesting and keeping track of issues on **GitHub** and **assisting in feature implementation**
- Processing flight data using Pix4D and confirming integrity of survey maps
- Communicating hardware failures to production team

Skills learned:

- management and mediation of a team
- prioritizing bugs based on urgency
- ability to **effectively communicate complex technical issues to developer team**
- maintain testing department and drone fleet
- ensuring feature developments are relevant to established customer workflows

UAV Survey Drone Tester

October 2020 – April 2021

- Following precisely defined testing protocols on the field and in office and created and followed up on issues through GitHub
- Thoroughly reported errors, findings, bugs, and incidents that occurred during flight tests. **Liaised with developer team** to patch proprietary software

- deep insight into applied robotics and aerial data collection
- organization of mass data storage
- working independently to troubleshoot technical issues

Sustainability Research Intern at *Dow Europe*

July 2019 – August 2019

Dow Europe GmbH (Horgen, Switzerland)

- Compiled data on European Polyethylene recyclers into database and identified 18 potential partners from 6 countries. Project involved calling businesses, researching, and **forming company profiles**
- **Worked independently** and internally with different teams through individual meetings, conference calls, and presentations to deliver progress reports

Skills learned:

- ability to **present** and answer questions about work; **explain technical concepts** in a business environment
- ability to **consistently** deliver **multifaceted analysis reports** on a strict schedule

Mechanical Design Team Lead at *CanSat Competition*

November 2018 – June 2019

CanSat 2019 Competition (Dallas, USA)

- **Managed team of 3 people** to design and manufacture two components of final satellite structure, container and payload with camera, environment sensors and release mechanisms
- Project culminated in competition in Texas where final CanSat device was launched from rocket to a height of 700 metres, placed 19th out of 45+ teams

Skills learned:

- **delegating tasks** and ensuring **timely completion** of project milestones in a year-long project
- leadership and management of a **technical project**

Projects

Detailed overviews of projects on personal website, see above

Group Design Project – Precision Agriculture Robot *Sep 2021 – Jun 2022*

- Designing and building an autonomous rover style robot that can navigate through a crop field, identify specific plants, and perform actions on them such as applying targeted pesticide, or pulling out weeds
- Rover equipped with stereo camera for use with computer vision in addition to onboard LIDAR for depth detection. Developed mechanical bogie system with hub motor wheels and mars rover style suspension
- Programmed using ROS, and PX4 for drone navigation system. Version control through GIT

Dissertation - UAV Flight Testing Protocol *Sep 2019 – Jun 2020*

- Developed flight testing protocol that automatically 'learns' aircraft performance to determine drag-polar, tested in virtual software-in-the-loop environment
- Collected data was compiled and analysed using Python to produce graphics and interpret physical meaning of data to determine aircraft characteristics; particularly with packages: pandas, ArduPilot, matplotlib, numpy. Completed extensive data analysis
- Academic research producing a literature review and finding relevant theory

Fixed Wing R/C UAV Platform *Jan 2019 – May 2019*

- Designed and built a fully functional UAV fixed-wing platform, flew in May of 2019
- Implemented **flight mechanics into Python code** to find wing semi-taper location, twist angle, and aileron dimensions, determined **optimal aerofoil with ANSYS CFD** analysis
- Manufactured wing using laser-cutter and 3D printing techniques

Skills and Languages

I speak...

- Fluent English
- Fluent Italian
- Spanish (B1)
- French (B1, IB 7)
- German (B1/B2)

I feel confident in...

SolidWorks, Fusion360, LaTeX, ArduPilot, Arduino, Laser Cutting, 3D Printing, PX4, ROS

I have experience coding...

Python 2 and 3.0+, C, C++, JavaScript, MATLAB, CSS, HTML, scikit-learn and keras packages

I have...

- Volunteered at local Upper Shirley Highschool and Southampton City College teaching GCSE Maths
- Completed 30 hours of powered flight training and 5+ hours gliding flight