

CHRISTOPHE FOYER

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US and French citizenship | Eligible to work without restriction in the USA and EEA

SUMMARY

Mechanical Design Engineer with experience in projects involving mechatronics and software development. Demonstrated track record of finding creative solutions to engineering challenges while operating under tight budgets.

- CAD, FEA and CFD
- Prototyping and Fabrication
- Engineering Hand Calculations
- Embedded Systems and Software Development

EXPERIENCE

Temporary Works Design

Design Engineer

London, United Kingdom

Nov 2018 – July 2019

TWD is an engineering company specialized in creating custom-designed tools and structures to perform transport and installation projects.

- Designed bespoke equipment and structures for offshore installation projects using Autodesk Inventor
- Verification of structural parameters using engineering hand calculations and finite element analysis
- Contributed to workflow optimization software in Python to simplify engineering calculations.

Tata Steel Europe

Engineering Intern – Student SWAT team

Ijmuiden, Netherlands

Apr 2018 – July 2018

Tata Steel is Europe's second largest steel producer, with steelmaking in the UK and Netherlands, and manufacturing plants across Europe.

- Successfully built a large-scale thermal simulation in Python reducing temperature estimation error by 82.4%
- Proof-of-concept enabling potential savings of several hundred thousand euros per year if implemented
- Organized a training session on collaborative code management (git) for the department

Wash. U. Design/Build/Fly Competition Team

Founder

Washington University in St. Louis

Mar 2016 – Dec 2017

WUDBF is an aerospace-oriented engineering team that attends yearly competitions that are sponsored by the American Institute of Aeronautics and Astronautics (AIAA).

- Co-led the team to 12th place out of 138 teams at the AIAA DBF 2017 competition
- Led the systems team to design and optimize aircraft internal systems through MATLAB simulations
- Managed an operating budget of \$10,000 to purchase components and organize travel to competition
- Scheduled weekly meetings with the team and coordinated project deadlines

EDUCATION

University College London

Master of Science Candidate - Scientific Computing

London, United Kingdom

Sep 2019 – Sep 2020

Washington University in Saint Louis

Bachelor of Science in Mechanical Engineering | Minor in Energy Engineering

Saint Louis, USA

Aug 2014 – Dec 2017

RWTH Aachen

Coursework in 'Renewable Energy Technology' | 'Mechatronics and Product Innovation'

Aachen, Germany

Jun 2017 – Jul 2017

School for International Training

Study abroad in Renewable Energy Engineering and Resource Economics

Reykjavik, Iceland

Jun 2015 – Aug 2015

Lycée Sainte Marie

French Baccalauréat with honours - Science track

Caen, France

Sep 2010 – Jul 2013

SKILLS

| | |
|------------------------|---|
| CAD / FEA / CFD | <i>SolidWorks, Autodesk Inventor, AutoCAD, Fusion 360, XFLR5</i> |
| Programming | <i>Python, MATLAB & Simulink, Linux, C++, JavaScript</i> |
| Fabrication | <i>3D-Printing, GD&T, Machining, Composite wet layup (FG/CF)</i> |
| Languages | <i>Native English and French speaker • Basic German and Icelandic</i> |

ACADEMIC PROJECTS

Senior Design Project – Low-Cost Concentrator Photovoltaics Aug 2017 – Dec 2017
Foyer, Christophe; Rangwala, Adam; and Nana, Deep, "Water Lenses for Low-Cost Concentrator Photovoltaics" (2017). Mechanical Engineering Design Project Class. (<https://openscholarship.wustl.edu/mems411/71/>)

- Coding of FEA and ray tracing software for optics simulation in MATLAB
- Development of a sunlight tracking circuit and coding using Arduino
- Creation of a working proof of concept prototype increasing solar cell output by 860%

Heat Transfer FEA Mar 2017 – May 2017
Heat transfer course final project; modelling of the cooking of a hotdog using analytical and numerical methods.

- Coding of heat transfer Finite Element heat transfer simulation in MATLAB
- Model validation using temperature measurements and data analysis

INDEPENDENT PROJECTS

Motor Test Stand Aug 2017 – Dec 2017
Design and construction of a motor test stand for Wash. U. Design/Build/Fly.

- GUI development, serial communication protocol and sensor integration
- Coded in Python and Arduino C, packaged in .exe format for easy deployment to new Windows installations
- Measures motor-propeller-battery system RPM, current, voltage, and thrust and logs output to CSV

Electric Longboard Oct 2016 – Dec 2017
Design and construction of a custom-built electric longboard.

- CAD, FEA, and part fabrication in aluminum and FDM printing of plastic parts
- Electrical powertrain design including component selection balancing efficiency and cost
- Designed according to air travel and personal transportation regulations

IRIS Voice Recognition and Home Automation Jan 2015 – May 2017
Custom-built smart home and media centre system for personal use.

- Coded in Python for voice recognition using google API interfacing with connected microphones
- Control over house appliances and interfacing with Open Source Media Center (OSMC)

Robotics Test Platform Dec 2013 – Jan 2015
Coding, and construction of an internet-controlled robot used for autonomous sensing and navigation.

- Coded the Frontend and backend written in Python on a running on a Raspberry pi
- Designed and built the hardware including onboard systems, chassis, and wiring.
- Experiments in visual odometry using OpenCV and ROS (*ongoing*)

VOLUNTEERING AND OTHER WORK EXPERIENCE

American Society of Mechanical Engineers Washington University in St. Louis
Event Planner Sep 2016 – May 2017

- Advised ASME members with ongoing projects on manufacturing and component selection.

Domaine du Vivier Le Mesnil Mauger, France
Seasonal farm hand Jun 2015 – Aug 2017

- Driver for the tossing of the hay and the loading of hay bales during the summer