Christophe Foyer

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French and US citizenships; Eligible to work without restriction in the USA and EEA

Summary:

Mechanical Engineering graduate with experience in projects in mechatronics, software, and aerospace engineering. Demonstrated track record of finding creative solutions to engineering challenges while operating under tight budgets.

- *CAD, FEA and CFD*
- *Electrical System Design*
- *Fabrication (metals, plastics, and composites)*
- *Linux Server Management and Software Development*

Education:

Washington University in Saint Louis — Saint Louis, United States
Bachelor of Science in Mechanical Engineering; Minor in Energy Engineering — Aug 2014 – Dec 2017
- Dean's List (Fall 2014, Fall 2017) — 3.14/4.00 GPA

RWTH Aachen — Aachen, Germany
'Renewable Energy Technology' | 'Mechatronics and Product Innovation' — Jun 2017 – Jul 2017

School for International Training — Reykjavik, Iceland
Study abroad in Renewable Energy Engineering and Resource Economics — Jun 2015 – Aug 2015

Lycée Sainte Marie — Caen, France
Série S (Science specialization) — Sep 2010 – Jul 2013
- French Baccalauréat: "Mention Bien" (with honors)

Relevant Experience:

Tata Steel Europe — Ijmuiden, Netherlands
Mechanical Engineering Intern — Apr 2018 – July 2018

- Built and implemented a real-time temperature simulation of a great number of steel slabs.
- Creation of a modular software framework and implementation of a heat transport model coded in Python.
- Performance optimization for real-time processing and visualization for large datasets.

Wash. U. Design/Build/Fly Competition Team — Washington University in St. Louis, USA
Co-Founder and Systems Team Lead — Mar 2016 – Dec 2017
Treasurer — Aug 2016 – May 2017

- Co-led the team to 12th place out of 138 teams at the AIAA DBF 2017 competition, and 1st in the US Midwest
- Designed aircraft internal system including battery and motor selection with the systems team
- Managed an operating budget of $10,000 to buy supplies and organize travel to the competition
- Scheduled weekly meetings with the team and set project deadlines

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

- Assisted ASME members with ongoing projects by advising them on manufacturing and component selection
- Researched potential STEM-related speakers to fit within budget constraint, presented reasons to fund Michio Kaku's visit to campus, and secured a date for his visit

Skills and Abilities:

CAD / FEA / CFD:	SolidWorks, Autodesk Inventor, Autodesk Nettfab, XFLR5
Programming Languages:	Matlab, Simulink, Python, Arduino C (C/C++), HTML
Fabrication:	3D-Printing (FDM), Machining (Lathe, Mill), Composite Manufacturing
Software:	Microsoft Office Suite, SVN, Windows, Linux
Languages:	Bilingual French / English; Basic German and Icelandic

Academic Projects:

Senior Design Project – Low-Cost CPV 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%.

Independent Projects:

Printable Folding Tricopter Jan 2018 – Apr 2018

Design of a folding tricopter frame for FDM printing:

- Design of interlocking printable parts using Solidworks and Autodesk Nettfab to be 3D-printed
- Designed to minimize weight and exterior volume while maximizing payload space.

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 for daily usage and international travel:

- 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.

Naïve Bayes Classifier Jun 2016 – Aug 2016

Coding of a Naïve Bayes Classifier for financial forecasting using machine learning:

- Average accuracy of 67% on pima-indians-diabetes test dataset.
- Achieved an accuracy of 51.51% when tasked to forecast wheat price trends (low accuracy due to limitations with regards to dataset size; which is a different, ongoing project)

IRIS Voice Recognition and Home Automation Jan 2015 – May 2017

Custom-built smart home and media center system:

- Voice recognition using google API interfacing with connected microphones
- Coded in Python 2.7 on a Raspberry Pi running a Linux-based OS (added support for Windows and OSX)
- Control over house appliances (both wired an wirelessly) and interfacing with Open Source Media Center

Robotics Test Platform Dec 2013 – Jan 2015

Design, coding, and construction of an internet-controlled robot used for autonomous sensing and navigation testing:

- Coded in Python on Linux-based microcontrollers
- Frontend: webpage coding in HTML and UI design
- Backend: hardware interfacing and communication over WebSocket between the webserver and the local microcontroller.
- Experiments in visual odometry using OpenCV and ROS (ongoing)

Volunteering and Work Experience:

ICC Ishinomaki, Japan
Volunteer May 2014

- Construction of wooden terraces for the local community in a region devastated by the 2011 tsunami.

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

- Maintenance and operation of farming equipment and various agricultural work
- Driver for the tossing of the hay and the loading of hay bales during the summer