



Henry MACKAY

Recent graduate passionate about hardware and software; continuously seeking to grow my technical skillset and embrace new cultural experiences.

Date of birth: July 2001

Nationality: Austrian, American

(Full E.U. Work Authorization)

CONTACT

8 Sint-Pietersvliet, Antwerp, Belgium

+32 456 54 67 14

hmm.mackay@gmail.com

henrymackay.com

linkedin.com/in/henry-mackay

LANGUAGES

- Native English
- B1 Spanish
- A1 German

PUBLICATIONS

- Zhang, L.; Riem, J.; Mackay, H.; Chen, J.; Lan, T.; Bastian, N. D.; Adam, G. C. "Multi-Memristor Based Distributed Decision Tree Circuit for Cybersecurity Applications," IEEE Transactions, 2024.

SKILLS AND INTERESTS

- Linux
 - Security Policy and Administration
 - Scripting and Automation in Bash
- OOP
 - Javascript (Node.js)
 - REST
 - Python
 - C#, C+
- OpenSCADA
- Networking
 - Network Troubleshooting
 - Network Traffic Analysis
- Embedded Systems
 - ESP and Arduino
- Hardware Programming
 - VerilogD, VerilogA

WORK EXPERIENCE

10/2024 – Present Antwerp

Junior Engineer Axabio

- Support and manage bioreactors controlled by a Linux-based SCADA system using OpenSCADA.
- Design and integrate hardware for a Modbus Network, enabling precise control of valves, lighting, and other critical components
- Develop and optimize STM32 firmware for active control loops, enhancing system efficiency and stability.
- Author and maintain technical documentation for electrical and embedded systems in bioreactors.

Website: <https://axabio.com>

04/2022 – 05/2024 Washington DC

Undergraduate Researcher Adaptive Microsystems Lab

- Collaborated with the USMA on an intrusion detection system with an integrated circuit powered by a decision tree framework.
- Wrote Python and TCL for automated generation of device layout using Google's open source Skywater-130 Design Kit.
- Managed Docker-based design environments and wrote technical documentation used across multiple universities.
- Assisted in the design of analog neural synapses for large scale, low power, neuromorphic computing.

Website: <https://adam.seas.gwu.edu>

09/2022 – 12/2023 Washington DC

Capstone Advisor GWU Innovation Center

- Provided technical support for GWU capstone projects involving electronics with an emphasis on Raspberry Pi and Arduino.

05/2019 – 09/2019 Baltimore

Cybersecurity Intern Point3 Security

- Developed an automated Linux-based virtual machine training environment for the purpose of training cyber operatives and evaluating vulnerability detection software.

EDUCATION AND TRAINING

09/2020 – 05/2024

Bachelors Degree George Washington University

Field of study Electrical Engineering

10/2023 – 06/2024 Washington DC

Bachelors Thesis Mykoprisma

- Led a team developing an automated plant growing environment for sustainable low cost food production.
- Built interactive web user interface using a Node.js REST API backend.
- Wrote decision making algorithm based on sensor data to enable full environmental control of temperature, humidity, and CO2.
- Designed PCB to integrate network-Enabled ESP-32, sensors, actuators, and camera.