

CV of Maximilian Gallup

Education

- 2023-Present MSc Computer Security Vrije Universiteit Amsterdam
- 2020-2023 BSc Computer Science Vrije Universiteit Amsterdam
- 2019 John F. Kennedy School Berlin American High School Diploma

Achievements & Notable Courses

2024

- 1st place at NXP Cup Finals (Hamburg)
- 1st place at NXP Cup Dutch Qualifiers (Eindhoven)
- Built a hardware and software platform where autonomous vehicles were used as a research platform for students of Computer Science at Vrije Universiteit under the name *Autonomous Systems Engineering (ASE)*³
- Co-supervised 13 successful bachelor projects with the newly built ASE project⁴.

2023

- 10th place at NXP Cup Finals (Bucharest)
- 1st place at NXP Cup Dutch Qualifiers (Eindhoven)
- Bachelor Thesis Project - *Implementing BLADE*¹ as a security pass in LLVM
- Graduated Cum Laude - BSc Computer Science Vrije Universiteit 8.5
- Assisted in the deployment of a full stack web app by automating infrastructure setup using Ansible and setting up a CI/CD pipeline.
- Software Security (X_400127 ²) Grade: 8.0 - Worked through a set of challenging assignments that involved finding vulnerabilities and crafting exploits to achieve code execution.
- Network Security (XM_0100 ²) Grade: 8.8 - Implemented (Mitnick's) DNS Cache Poisoning Attack and the Kaminsky Attack
- Compiler Construction (XB_0003 ²) Grade: 9.0 - Completed frontend for FenneC language and implemented basic optimization passes in LLVM
- Project Autonomous Driving (XB_0045 ²) Grade: 8.5 - Building and programming an autonomous vehicle to compete in the NXP Cup 2023.

2022

- Advanced Network Programming (XB_0048 ²) Grade: 8.0 - Implemented part of a User-space Networking Stack (RFC 793)
- Secure Programming (XB_40005 ²) Grade: 8.5 - Simple Chat and Server program with focus on security using openssl for Secure Programming

Hardware Experience

From the ASE project, I learned about electronic design automation with KiCad by designing a simple power distribution board. I also learned to design 3D printed parts and flat metal plates that make up the ASE-Rover using Onshape. Furthermore, I implemented a high torque, but low velocity brushless motor control utilizing *Field-Oriented-Control* to also enable electronic braking and differential. Most importantly, I practiced the iterative design process through trial and error.

¹ Vassena, et al: <https://gleissen.github.io/papers/BLADE.pdf>

² Source code or paper can be made available upon request

³ <https://ase.vu.nl> ⁴ <https://ase.vu.nl/docs/project/showcase/2024>

Software Experience

Additionally, from the ASE project I helped architect a performant and modular software framework similar to the existing Robot Operating System (ROS). This framework allows for modular software components written by students to be integrated easily and correctly into the existing functionality of the Rover. I also gained experience in automating the setup of Linux hosts using Ansible and running various containerized services in a private network. Additionally, I like to explore the Rust programming language by building various hobby projects with it. The following is a list of tools and services I used in the past for personal projects or university courses:

- Services: Nginx, Nextcloud, Containerized Personal Blog
- Networking: WireGuard, Tailscale, Wireshark
- Linux: Systemd Services & Containerization
- Cloud: Docker, Ansible, Kubernetes, Helm, Google Cloud Platform

Languages

- Native: English, German, Czech
- Beginner: Dutch (A2)

Personal Interests

- Animal Rights Activism, Digital Privacy, Right to Repair Movement, Open Source
- Renewable Energies and Sustainability
- Rust, Operating Systems, Compilers, Neuromorphic Computing, Mojo (language), RISC-V
- Aviation and Robotics
- Volleyball

Contact

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- github: <https://github.com/maxgallup>
- blog: <https://basingse.org>

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