



# Mathijs Verhaegh

## Curriculum Vitae

### PERSONAL DETAILS

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<i>Birth</i>	March 13, 1996
<i>Address</i>	Havensingel 162, Eindhoven
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### TECHNICAL & WORK EXPERIENCE

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#### Software programmer and architect & DevOps

2021-present

*Fraunhofer Heinrich Hertz Institute, Berlin*

Design and development of an integrated measurement and management software stack for use in (optical) characterisation laboratories. Mostly developed in modern Python, the project enables a predictable, repeatable yet flexible programmatic definition of measurements/tests built on top of a library taking care of physical hardware abstraction. Introduction of modern development practices and automation systems to the group.

#### Chairman, founder

2018-2020

*Stichting Hackathon Nederland (Foundation)*

Chairman and co-founder of foundation organising large scale technology-focused international hackathons under the brand 'JunctionX Eindhoven'. Experience with online presence, partner acquisition, hardware and software hacking and event management.

#### Lab research, computational modelling & numerical analysis

2019

*Fraunhofer Heinrich Hertz Institute, Berlin*

Independent set-up and execution of research in physics and electrical engineering. Focus on the characterisation of monolithically integrated mode locked lasers on Indium Phosphide. In addition, analysis of semiconductor performance degradation through accelerated ageing experiments. Experience with optical and electrical characterization measurements, operation of measurement devices, data trimming, data visualisation, numerical parametrisation of models. Results and work process graded with a 9.5 out of 10.

#### Treasurer, Event management & Technical planning + design

2015-2018

*LANCo, Student association e.t.s.v. Thor*

Member of a committee devoted to organizing a yearly large-scale (300+ participants) LAN-party aimed at technical students. Experience with the positions of External relations, Treasurer, general management of tech events as well as technical planning and design. The latter includes PCB design, real-time distributed networked data streaming for custom designed (micro-controller based) light beacons and power distribution.

#### Sales, Tech support & Deputy store manager

2014-2017

*Welcom Geldrop, Part-time*

Work experience with Sales, Customer relations, Tech support and Store management. Deputy store manager during weekend shifts, i.e. Opening/closing the store, managing

employees, supply orders, daily settlements and negotiating orders with business customers.

### **Sales & Tech support**

2012-2014

*Expert Electronics Asten B.V., Part-time*

Work experience with Sales, Customer relations, Tech support, Installation of hardware at customer location and Cellular plans.

## **EDUCATION**

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### **MSc. Electrical Engineering**

2017-2021

*Eindhoven University of Technology*

Specialization in the field of Photonic Integration. Part of double-degree programme in combination with Applied Physics. Joint EE-AP Master's Thesis project on the effects of delayed optical feedback on integrated Distributed Feedback (DFB) Lasers. The work involved three parts: The design and implementation (in Python) of a parallel FDTD numerical simulation and iterative mode solving/decomposition framework of the longitudinal modes in a multi-section semiconductor laser. The design of an optical integrated chip containing test structures/devices, produced on the Fraunhofer HHI multi-project wafer (MPW) platform. Thorough characterisation of the test chip and comparison against theory (computer model) and suspected feedback-related anomalies observed in other chips from the HHI MPW platform. Work graded with 9/10 for both EE and AP.

### **MSc. Applied Physics**

2017-2021

*Eindhoven University of Technology*

Specialization in the field of Nano materials and devices. Part of double-degree programme in combination with Electrical Engineering. See the description above.

### **BSc. Electrical Engineering**

2014-2017

*Eindhoven University of Technology*

Educational programme configured in the direction of telecommunications. Emphasis on Integrated Optics & Physical Computational Modelling. Bachelor thesis on Integrated Optical Polarization Filters passed with a 9 out of 10.

## **TRAINING & OTHER ACTIVITIES**

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### **Intercultural communication**

2018-present

*European Students' Forum "AEGEE"*

Taking part in exchanges with AEGEE antennae in various countries across Europe (Georgia, Republic of Macedonia, ...) with a strong emphasis on intercultural integration and international networking.

### **Project leadership**

2017

*Eindhoven University of Technology*

Guiding a group of bachelor students working on technical project for a design-based university subject. Experience with identifying bottlenecks, streamlining teamwork and efficient process meetings.

### **Electronic design project**

2016-2017

*Eindhoven University of Technology*

Technical design and realization of an LED cube as electronic centerpiece for demonstrations by the Department of Electrical Engineering of Eindhoven University during open days.

Design of the LED cube entails controlling 512 multi-coloured LEDs in real-time with a low-power micro-controller.

## HOBBIES

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### Electronics, Programming & System administration

Years of experience at the interface of software and electronics. Prototyping of ideas by implementing diverse micro-controllers, 3D printing, electronics and embedded programming. Hosting & Maintenance of containerized (web) servers on Linux-based computer systems.

### (Urban) Exploring

My ideal holiday destination would be a forgotten steel factory in rural Moldova, or a sleepy town in Uzbekistan. For as long as I can remember I've been fascinated with the former Soviet Union, the architecture and desolate abandoned places. I like exploring them.

## SKILLS

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<i>Languages</i>	Dutch (mother tongue) English (fluent) German (moderate)
<i>Software</i>	MATLAB/OCTAVE, MATHEMATICA, L <sup>A</sup> T <sub>E</sub> X PYTHON, SCIPY, NUMPY, C, C++, ARDUINO, KICAD ARCH LINUX, DEBIAN, FEDORA SERVER WINDOWS
<i>Professional</i>	Intercultural communication Event management Time-constrained teamwork

## REFERENCES

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Available upon request