Mathijs Henquet

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7 January 1994

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(some entries are hyperlinks)

Experience

2023– R&D Engineer at NLR – Royal Netherlands Aerospace Centre

Specialized in innovative technologies such as 3D reconstruction and Generative AI. Responsibilities included identifying emerging technologies, pitching their applications by understanding customer use cases, writing grant proposals, conducting applied research, and developing both proof-of-concept and production-ready projects.

- Pitched and leading a NATO funded project for a spatially aware AI assistant.
- Led a study on using Speech-to-Text and LLMs to summarize flight training debriefing.
- Proposed and developed internal GenAI tooling at NLR with sensitive and classified data.
- Supported an Aircraft Maintenance project with 3D reconstruction techniques based on Gaussian Splatting, for which I also supervise two Master Thesis projects:
  - Aerospace student: Informative path planning for drone swarms
  - AI student: Uncertainty estimation for optimal live data acquisition

2020 Volunteer at Epidemic Forecasting

Supported decision makers with Covid19 scenarios and modeling, geared toward the global south. I worked on displaying the models in the frontend.

2015 Tutor Linear Algebra at Utrecht University

Publications

2024 **Henquet**, Belluci, Amghane, et al. "Mesh-as-a-Service: Automated 3D Modelling fast as I-AI-ghtning." *I/ITSEC: Interservice/Industry Training, Simulation and Education Conference*. Accepted for presentation and publication.

2024 **Henquet**, Belluci, "AI-Assisted Debrief: Automated Flight Debriefing Summarization and Competency Assessment." *ICCAS: International Conference of Cognitive Aircraft Systems*. Presented and accepted for publication.

Projects and awards

2024 Internal GenAI tooling at NLR, *Ongoing*

Proposed and developed internal generative AI tools for the NLR, including translation and chat assistants, while managing sensitive and classified data.

2022– Master thesis project, *Unfinished*

Proving the correctness of automatic differentiation in the presence of recursion and iteration.

2020 Corona Dashboard

Short-term modelling project of the corona epidemic using public data sources, using Mathematica. Later subsumed by my work with epidemic forecasting.

2019 Summer fellow at MIRI

An academic retreat by the Machine Intelligence Research Institution for mathematicians and programmers with a serious interest in making technical progress on AI alignment.

2019 Bachelor Thesis Homotopical mathematics, Grade: 9/10

On homotopy type theory and its relation to higher topos theory.

2018 Software project Speech2EPD

We made a system which produces a electronic medical file by collecting multimodal inputs such as recorded consults and digital measurements. For this I designed and implemented a flexible microservices based architecture which served as the backbone of this system.

2016 Winner of µKP programming competition

Awarded best programmer among ~280 second year CS students, Utrecht University

Education

2020 – **Master Mathematics**, *Utrecht University*, Unfinished

2015 – 2019 **Bachelor Informatics**, *Utrecht University*, Grade point average 7.8/10

2012 – 2019 **Bachelor of Mathematics**, *Utrecht University*, Grade point average 7.8/10

2016 – 2017 **Erasmus semester**, *Freiburg University, Germany*

2006 – 2012 **Secondary education**, *De Nieuwste School, Tilburg*, Grade point average 8.5/10

Technical skills

Advanced Rust, C# (.NET Core), JavaScript (Typescript, Node.js), React, Web (HTML, CSS), Haskell, Mathematica, Python, Docker, LaTeX

Intermediate Git, Java, PHP (Symfony, Doctrine), SQL (MySQL, PostgreSQL, Oracle), NoSQL (MongoDB, Redis), Linux, Powershell, Bash

Language skills

Dutch C2 - Native English C2 - Near native German C1 - Excellent