Wouter ten Brinke

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INTRODUCTION

I am a Master's student in Embedded Systems at the University of Twente, specializing in the integration of hardware and software for high-performance, real-time applications. With hands-on experience in full-stack development, cloud services, and IoT systems, I enjoy tackling complex technical challenges and contributing to innovative projects that bridge theory and practical solutions. I am particularly interested in embedded software engineering, system-on-chip design, and applications at the intersection of connected devices and intelligent systems.

EDUCATION

• **University of Twente [⊕]**   *Sept. 2025 - Jul. 2027*
MSc Embedded Systems   Enschede, the Netherlands

Master of Science in Embedded Systems at the University of Twente. Focused on the design, analysis, and implementation of software and hardware for embedded applications.

◦ Exploring advanced topics in real-time systems, IoT and embedded software engineering.

◦ Developing expertise in integrating hardware and software for high-performance embedded systems.

◦ Participating in multidisciplinary projects that bridge theory and practical application.

• **Università degli Studi di Genova [⊕]**   *Sept. 2024 - Feb. 2025*
Erasmus+ Computer Engineering and Robotics Engineering   Genova, Italy

Participated in an Erasmus+ exchange program at the Università degli Studi di Genova, focusing on advanced topics in Computer Engineering and Robotics Engineering.

◦ Completed courses in Computer Vision and Real-time Operating Systems, gaining expertise in visual recognition systems and time-critical software development for robotics.

◦ Achieved A1 level proficiency in Italian through a language course offered by the university.

◦ Studied cloud computing topics including 5G, Cloud and IoT, Augmented and Virtual Reality, and Virtualization and Cloud Computing, understanding modern network infrastructures and emerging technologies.

• **University of Twente [⊕]**   *Sept. 2022 - Jul. 2025*
BSc Technical Computer Science   Enschede, the Netherlands

Bachelor of Science in Technical Computer Science at the University of Twente. Bachelor thesis: FlexiTeX

◦ Gained in-depth knowledge of programming, software systems, computer networks, algorithms, and computer hardware.

◦ Engaged in interdisciplinary team projects, collaborating with students from various technical disciplines.

◦ Developed practical skills through hands-on projects, including designing and implementing software solutions.

• **Het Erasmus [⊕]**   *Sept. 2016 - Jul. 2020*
Voorbereidend Wetenschappelijk Onderwijs (VWO)   Almelo, the Netherlands

Completed the six-year VWO program.

◦ Specialized in Natuur en Gezondheid and Natuur en Techniek profiles, focusing on subjects such as biology, chemistry, physics, and mathematics.

◦ Engaged in the Technasium program, collaborating on research and design projects commissioned by real companies, enhancing problem-solving and teamwork skills.

◦ Developed a strong foundation in scientific principles and practical applications, preparing for further studies in technical and health-related fields.

WORK EXPERIENCE

- **Cloudwise B.V. [🌐]** *Feb. 2023 - Present*
  Software Developer (Part-time) Hengelo, the Netherlands

  Contributing to the development and maintenance of Klasbord, a full-stack application designed to enhance communication between schools and parents.

  ○ Developed and maintained features for Klasbord, improving user experience and functionality.

  ○ Implemented backend services using ASP.NET, ensuring robust and efficient server-side operations.

  ○ Created dynamic and responsive user interfaces with Angular, enhancing client-side interactions.

  ○ Deployed and managed application services on Azure Web Services, optimizing performance and scalability and logging.

PROJECTS   🌐 = PORTFOLIO,   🔗 = DEMO,   🎧 = GITHUB,   🔓 = UTWENTE

- **Auto Information System [🌐, 🔗]** *Personal project*
  A Full-Stack System for Dutch Car License Plate Information

  The Auto Information System is a comprehensive solution for retrieving, processing, and displaying vehicle data. The backend is built with .NET Core and uses Entity Framework for database management, while the frontend is developed with Angular for a responsive and interactive user experience. The project integrates external APIs for vehicle data, supports real-time updates with SignalR, and is fully containerized with Docker for seamless deployment.

- **FlexiTeX (Bachelor thesis) [🌐, 🔗, 🎧, 🔓]** *University project*
  LaTeX Collaboration Without Giving Up Personal Project Structure

  LaTeX gives users a lot of freedom in how they structure their projects, but this becomes a problem when working with others. Popular collaboration tools assume that all users follow the same project structure, which does not reflect how people actually prefer to organize their work. This thesis introduces FlexiTeX, a system that allows each user to keep their own project structure while still collaborating on the same content. The system works by flattening a LaTeX project, parsing it into an abstract tree that captures the logical structure. It then applies transformation rules to rebuild the project structure based on a configuration file. The transformation is designed to be reversible, idempotent and preserve the ability to compile the document. A proof of concept shows how this approach can be used in a collaborative setup where each user works in a personal branch and changes are synced through a shared internal version. An evaluation on real-world projects shows that the system preserves content in most cases, although some limitations remain due to parser behavior. Overall, FlexiTeX makes it possible to collaborate on LaTeX projects without forcing everyone to adopt the same structure.

- **SonicViz [🌐, 🔗]** *University project*
  Real-Time Audio Visualization and Interaction

  SonicViz is a mobile application designed to visualize audio in real time. It provides tools like spectrograms and scrolling waveforms to help users analyze and interact with sound. Built using the Ionic framework and Capacitor, the app supports both Android and iOS platforms, ensuring a seamless experience across devices. SonicViz also includes features for recording, playback, and audio-based games, making it a versatile tool for both learning and entertainment.

- **ByteBender Language and Compiler [🌐]** *University project*
  Designing and Implementing a Language for the Sprockell CPU

  ByteBender is a custom programming language and compiler developed as part of a university project. It translates high-level code into machine instructions for the Sprockell processor, a simple Haskell-based CPU. The project includes a frontend for parsing and type-checking, a backend for code generation, and integration with the Sprockell simulator for execution. The language supports multithreading, synchronization primitives, and shared memory operations.

PUBLICATIONS   T = THESIS

[T.1]   Wouter ten Brinke. FlexiTeX: LaTeX Collaboration Without Giving Up Personal Project Structure. Bachelor's thesis, University of Twente, June 2025. http://purl.utwente.nl/essays/107262

ADDITIONAL INFORMATION

Languages: Dutch (Native), English (C1 (Fluent)), German (B2 (Intermediate)), Italian (A1 (Basic))