Tristan Toye | Software Engineer

toye.tristan.applications@gmail.com
Projects: https://tristan-toye.github.io/

PROFESSIONAL EXPERIENCE

Imec – Internship & Thesis   **Leuven, Belgium**
R&D Compute System Architecture group   *Mar 2025 – Current*
- First in the community to engineer a comprehensive installation pipeline for the Autoware Core & Universe 47 software stack on the embedded platform Nvidia Jetson Orin AGX, an ARM architecture with NVIDIA Ampère GPU
- Optimised CPU and GPU chiplet architectures through roofline modelling supported by architecture agnostic metrics
- Build a first-of-its-kind comprehensive profiling database for the autoware software stack for community development

Cardio Flow Design   **Tokyo, Japan**
R&D Software engineering intern   *Oct 2023 – Aug 2024*
- Developed a C# cardiovascular segmentation algorithm, applying statistical analysis and regression techniques, enabling precise identification of anatomical structures in MRI data with 91%(IOU) accuracy
- Integrated quadratic spline interpolation, enhancing the smoothness of the cardiovascular boundaries, reducing edge artefacts by 22%(ROI), leading to more accurate 4D reconstructions
- Spearheaded parallel processing implementation of SOR algorithm for 4D MRI, accelerating cardiovascular image analysis by 15%(latency), improving processing efficiency

Manipal University of Jaipur   **Jaipur, India**
Academic research intern   *Aug 2023 – Sep 2023*
- Implemented YOLOv3, achieving a mean average precision score of 0.85 on benchmark datasets, demonstrating superior performance in real-time Object Detection and Tracking
- Conducted 75+ hours of research, which involved testing, debugging, and automating the model validation pipeline, reducing manual testing time by 8 hours weekly and enabling heuristic hyperparameter search

Catholic University of Leuven   **Leuven, Belgium**
Research intern at STADIUS at the ESAT department   *Oct 2022 – Jul 2023*
- Constructed a linear auditory attention decoding (AAD) model for stimulus reconstruction from EEG data alongside semi-supervised learning techniques for absolute attention decoding
- Engineered a continuous learning model with sliding window attention for auditory decoding, achieving personalization of a pre-trained base model, improving the accuracy by 15%

Twipe digital publishing   **Leuven, Belgium**
Summer internship followed by junior software engineer contract   *Jul 2022 – Jun 2023*
- Developed a comprehensive Python repository that automated the creation of client dashboards, reducing manual reporting time by 8 hours. Also, through data analysis, I discovered a Severe Operational Incident on production.

EDUCATION

Master of Science in engineering: computer science – Magna Cum Laude   **Leuven, Belgium**
University of Leuven (KUL)   *Sep 2024 – Jun 2026*
- Courses: Machine learning; Data Mining; Big Data Analytics Programming; Information Retrieval & Search Engines; Algorithms & Data Structures; Genetic Algorithms; Software Architecture

Extra-Curriculars

Google developer group (GDG)   **Leuven, Belgium**
Corporate Relations Lead   *Sep 2025 – Current*
- Supervised a team of five, instilling advanced proficiencies in partner relationship development, facilitating the acquisition of key resources, and strengthening industry partnerships, enabling the organization of GDG events

Hydro Team co-founder – Hydrogen-fueled LMP Racecar   **Leuven, Belgium**
- Interviewed, selected and mentored 22 high-achieving engineering students using agile methodologies to pioneer the use of automotive ethernet in racing applications, leveraging Power over Ethernet (PoE) throughout the wiring harness

Model United Nations Society Belgium (MSB)   **Leuven, Belgium**
Active member   *Sep 2022 – Jun 2023*

Skills & certificates

Skills: Python, C#, Rust, SQL, Haskell Git, AWS, Docker, Linux, RAG, Search Engines, Databases, (Genetic) Algorithm design, AI, ML, Deep Learning, Numpy, Pandas, Numerical Algebra Mathematics & Modeling, Probability Theory & Statistics, Data Science

Certificates: Alumni Engineering Award, TOEFL 116/120, Awards @OxiMUN, LiMUN & Harvard World MUN