
Hayden Austin

Software Engineer | Machine Learning Systems

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Software engineer combining independent neural-model and GPU research with applied document and speech processing. Work spans custom execution paths, numerical validation and audio-enhanced EPUB tooling.

RESEARCH & MACHINE LEARNING PROJECTS

Independent ML systems & numerical research | [Code](#)

- Implemented recurrent models and learned-memory experiments in PyTorch and JAX/Flax, with parallel scans and custom CUDA/Triton execution.
- Developed autograd paths and reference checks for outputs, gradients and streaming equivalence.
- Built controlled benchmarks and artifact-integrity checks; used SymPy/FLINT for exact-arithmetic validation.

Audio-enhanced EPUB tooling (in development) | [Project overview](#)

- Developed PDF extraction, OCR and text-fragment components for an audio-EPUB authoring pipeline.
- Integrated Whisper-family alignment and Edge TTS paths with narration timing and EPUB media-overlay packaging; integration validation is ongoing.

Agronomy data application (in development) | [Project overview](#)

- Implemented forecast validation, cache freshness and rainfall-coverage handling that distinguishes missing observations from zero.

EXPERIENCE

Freelance Developer

2023 - 2025

- Developed web applications for commerce and professional services, covering product catalogues, authentication, content management and deployment.

Game Server Developer & Administrator

2019 - 2022

- Built event-driven Java plugins with persistent item metadata and server API integrations; maintained Linux servers and investigated performance issues.

TECHNICAL SKILLS

Models & inference: Python, PyTorch, JAX/Flax, TensorFlow/Keras, Whisper integration

GPU & numerical: C++, CUDA, Triton, NumPy, SymPy, FLINT

Applied engineering: OCR, audio-text alignment, reference tests, Git, Linux

EDUCATION

Belgium Campus ITversity

Studies toward a Bachelor of Computing, specialising in Software Engineering.