

# Giacomo Guidotto

Software Engineer

## About

Software Engineer with 3 years at Danfoss, promoted from Junior to Mid in 2 years. Known for high-leverage technical adoption (Next.js, Biome) and fast ramp-up (learned Go and shipped production PRs in <1 week). Experience spans React micro-frontends, Go microservices, Kafka/MQTT integrations, and ML pipelines.

## Experience

- Software Developer**, Danfoss, Venice, Italy (Part-time) Sep 2022 – Present  
Frontend / Micro-frontends (TypeScript, React, Next.js)
  - Drove adoption of Next.js on top of React in an incubator (PoC/MVP) setting, enabling a more scalable foundation for production features.
  - Shipped a new micro-frontend from baseline to production, collaborating across teams on APIs, routing, and shared UI patterns in a micro-frontend architecture.Backend / Microservices (Go, SQL, Kafka, MQTT)
  - Owned a graph-representation microservice end-to-end: researched requirements, designed the data model and APIs, and implemented a sync engine to keep graph/business entities consistent with the database.
  - Built MQTT client certificate renewal functionality, improving operational reliability for device connectivity.
  - Optimized Kafka producer path for large payloads via chunking + streaming to reduce memory pressure and improve throughput for big messages.Data / ML Pipelines (Python, MageAI)
  - Contributed to Python data processing pipelines (MageAI) interfacing with a data lake and training ML models used for predictive control of energy consumption across business entities.
- Promoted from Junior to Mid-level Engineer in 2 years, leading to increased responsibility and impact.

- Scientific Researcher**, Ca' Foscari University of Venice, Venice, Italy (Part-time) Oct 2025 – Present  
Tech: Python, PyTorch, PyTorch Lightning, uv, Docker, CI/CD.
  - Leading development of a Python library for Physics-Informed Neural Networks (PINNs), focusing on modular architecture and strong developer experience.
  - Reduced training time by ~30% via novel stopping criteria and training workflow improvements.

## Education

- Ca' Foscari University of Venice**, *BSc in Computer Science*, Venice, Italy (While working) Sep 2022 – Jul 2025  
**GPA: 29.0/30.** Research thesis on Physics-Informed Neural Networks for epidemiological modeling.
- University of Gothenburg**, *Erasmus Exchange*, Gothenburg, Sweden (While working) Sep 2024 – Jan 2025  
Relevant coursework: Data Science & AI, Functional Programming.

## Projects

- PINN:** Modular Physics-Informed Neural Networks framework (Python, PyTorch Lightning)
  - Framework to solve ODEs and inverse problems by composing physics constraints with configurable weights; supports learnable fields and parameters with reusable components.
  - Repo: <https://github.com/giacomoguidotto/pinn>

- Workspace:** Reproducible dev environment + dotfiles (Nix flakes, home-manager, Dotbot)
  - Declarative, XDG-compliant development environment using Nix for reproducible, sandboxed setups.
  - Repo: <https://github.com/giacomoguidotto/workspace>

## Achievements

- Selected among top 15% of STEM mentees (2,000+ applicants), LeadTheFuture, 2025.
- Selected for summer school on cutting-edge CS research, BOOST '25, 2025.
- Cambridge Advanced English (C2), Grade: 203, 2025.