

Massimo Albanese

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Professional Experience

Software Engineer – MadPixel Software (Under Contract to SPECTRA)

July 2024 – Present | Remote

- Self-employed contractor delivering comprehensive **UI/UX** design, implementation, and front-end development
- Reengineered a dynamic, template-driven form generation system in **JavaScript** and **React**, streamlining workflows
- Maintained a large-scale **React SPA**, improving performance and maintainability, while rectifying critical bugs
- Redesigned and modernized the UI using a standardized component framework (**AntD**) for consistency and scalability

Products

MadPixelSort – Image & Video Pixel Sorting Application

2021 - Present | madpixel.software/madpixelsort

- Created a cross-platform desktop application using **Electron**, **JavaScript**, **Bootstrap**, and **Rust**
- Conceptualized and engineered the entire product, launching it in the market and achieving commercial viability
- Sorted pixels up to 90x faster over other solutions by developing a **multi-threaded** Rust pixel sorting algorithm
- Integrated video and animation editor functionality with keyframes and timeline, leveraging **FFmpeg**
- Fostered a community of over 100 users on Discord, and generated over 1800 user posts on [Instagram](#)

Education

B.Eng. Software Engineering, Internet of Things Specialization – Ontario Tech University

Oshawa, Ontario | 2024 | President's List W20 & F23, Dean's Honours List F21 & F22

Projects

MedAssist – IoT Smart Medicine Cabinet

2023 – 2024 | github.com/madlitch/magicmirror | 1st Place, Capstone Design Competition, Ontario Tech University

- Led the design and assembly of a smart medicine cabinet for patients with dementia
- Utilized **OnShape** to design and create assemblies for the medication dispensers, electronics, and other components
- Designed and 3D-printed solenoid-actuated dispensers with extensive testing for reliable medication delivery
- Engineered an electronics system with **Raspberry Pi**, relays, and power distribution, with detailed wiring and soldering
- Rebuilt a **Node.js** and **Express** backend, implementing modularity while enhancing security and maintainability

Secure Purchase Order System

2024 | github.com/madlitch/secure_purchase_order

- Developed a secure purchase order management system with **FastAPI**, **PostgreSQL**, **Bootstrap**, and **Docker**
- Secured communications via encrypted and digitally signed emails compatible with **OpenPGP**-enabled email clients
- Streamlined user registration and key management, auto-generating PGP keys and securely encrypting private keys
- Implemented a dual-signature protocol using user and server keys for secure, non-repudiable purchase orders
- Automated the embedding of verifiable timestamps in purchase orders to ensure integrity

StringShare – Distributed Social Media Network

2023 | github.com/madlitch/stringshare

- Developed a decentralized social network inspired by Mastodon using **FastAPI (Python)** and **PostgreSQL**
- Engineered a publish-subscribe server protocol for real-time data synchronization across server instances
- Integrated image and video support in the protocol, hosting files on source servers and propagating links
- Leveraged **Docker** for easy instance deployment, enabling instant setup with domain configuration
- Implemented Single Version of Truth for immutable data consistency across the network

Skills

Programming Languages: Rust, Python, JavaScript, HTML, CSS, Java, Flutter, Dart, C, C++

Technologies: React, FastAPI, PostgreSQL, Jest, Bootstrap, Docker, Electron, Git, Node.js, OnShape, Solidworks

Languages: English, French, Italian