



ANDREA VENUTA

Software Engineer, Quantitative Analyst

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Summary

I've been writing code since I was 13, and professionally for the past decade. My specialty is writing *fast* and *clean* code, and my favorite language is **Rust**.

I'm currently employed as a *Quantitative Portfolio Manager*. I write trading algorithms and quantitative analysis tools to help making investment decisions. I use **Python**, its data science stack (**pandas**, **numpy**, **jupyter**) and native extensions for exploratory analyses, and **Rust** for time-sensitive and mission-critical applications. I tend to architect my applications in *microservices* and deploy using **Docker** where appropriate.

I want to build software that makes a net positive difference in the world. I want my efforts to be meaningful and make people's lives easier and happier, and won't accept jobs which are exploitative of others or unethical in nature.

Employment History

Azimut Capital Management sgr 10/2017 - present day

- Developed a portfolio and order management system for fast automated strategy signal computation, portfolio differencing and order generation. Written in Rust, sourcing prices data from IQFeed / Bloomberg API, deployed in the context of time-sensitive equity strategies (operations on tens of single-stocks for tens of client accounts as close to the end of trading day as possible).
- Developed a proprietary backtesting platform in the form of a C++ CPython extension, supporting Jupyter widgets via Vue.js/Web Components. Mixed vector/event-driven architecture, allowing limit orders, margin trading, portfolio weight targeting, integrating with the Pandas/NumPy/SciPy stack.
- Implemented an automated signal generation pipeline for the AZ MA Algo Equity Strategies fund: relative vol trading of VIX ETNs replicated via futures, long-short momentum and mean reversion on index futures, with parametric diversification.

Interfase s.r.l. 08/2012 - 02/2018

- Developed a multi-monitor interactive data visualization installation, controlled from a terminal with a local ad-hoc network
- Developed a distributed multi-device Virtual Reality immersive video player, with playback controlled by a narrator with a remote application
- Developed a GIS tool for visually designing domain-specific scenarios, feeding the result to a mathematical model engine and reporting upon its output

GWC World 08/2011 - 06/2013

Standouter.com 08/2011 - 08/2012

Skills

Software Development

Rust · C++11 · Python · Javascript · Functional programming · Low-level performance optimization · Concurrency · Parallelism

Quant Finance & Data Science

Pandas · NumPy · Jupyter Notebooks · SQL · Algorithmic trading · Econometrics · Equities · Futures · Derivatives

Frontend

Javascript/ES6 · Interactive data visualization · WebGL · Canvas2D · Vue.js · Svelte.js

Backend & DevOps

RESTful API · Microservices · Docker · Docker Compose · Node.js · Java EE

Graphics Programming

Real-time rendering · Computational geometry · Shading algorithms · Procedural content generation

Machine Learning

Neural networks · Deep learning · Computer vision (OpenCV) · Linear/nonlinear programming · Regression analysis

Education

MSc Finance & Risk Management 110L/110 Università degli Studi di Firenze 2018

Thesis: *"Deep Learning models for High-Frequency Cryptocurrency Forecasting"*. I applied a *long short-term memory* based recurrent deep neural network to intraday pricing data for a number of cryptocurrencies listed on the GDAX exchange. Findings showed that a simple model on 5-minute data is unable to forecast returns, but may forecast realized volatility (squared returns) with significant precision.

BSc Computer Science 103/110 Università degli Studi di Firenze 2015

Thesis: *"Procedural Content Generation and Real-time Rendering"*. I researched and designed a mathematical formalism by merging parametric open L-systems and shape grammars to define urban architectural elements and procedurally generate 3D models of cities. The models were textured with signal function-based, anti-aliased procedural textures and rendered in the context of a deferred, multi-pass shading renderer.

Diploma di Perito Informatico 100/100 I.T.I.S. "T. Buzzzi" 2008