Niccolò Zuppichini

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EXPERIENCE

Lemonate April 2025 – Present
Senior Software Engineer Schaffhausen, CH (Remote)

- Architecting and implementing enterprise-scale 3D scanning, data hosting, and publishing infrastructure for a comprehensive web-based 3D rendering engine.
- Driving core development of Lemonate's interactive 3D platform, enabling real-time rendering and deployment of complex 3D applications directly in web browsers.
- Implementing advanced rendering algorithms and performance optimizations for Lemonate's proprietary WebGL engine, supporting cross-platform 3D content creation and visualization.
- Contributing to engine architecture decisions and developing tools for seamless 3D workflow integration across web environments.

Mindcraft AG October 2022 – April 2025
Senior Software Engineer Bern, CH (Remote)

- Designed and implemented a custom rendering engine tailored for high-performance web rendering within Meshvalley platform.
- Developed and optimized VFX systems and real-time particle systems for advanced 3D content publishing workflows.
- Created and integrated geometric algorithms to support advanced 3D processing workflows and real-time rendering.
- Contributed to architectural decisions ensuring scalability, efficiency, and visual quality of the 3D platform.

Panua July 2022 – Present
Web Developer / DevOps Engineer (Freelance) Lugano, CH (Remote)

- Collaborate with Panua's team on an hourly basis, providing expertise in Web Development, DevOps and Software Engineering.
- Implemented a software to generate, validate, and authenticate users' machine fingerprints to prevent the piracy of Panua Technologies Software, enhancing the security of the company's products.
- Ensuring high availability and performance of Panua's software platforms.
- Develop automated deployment and testing pipelines using Docker, improving the efficiency and reliability of software releases.

Hegias September 2018 – September 2020
Software Engineer | DevOps Manager Lugano & Zurich, CH (Hybrid)

- Led Agile team of 5 developers to continuous deployment and increased productivity by 20% by pair programming.
- Responsible for the Unix server infrastructure capable of handling thousands of clients' request.
- Independently solved the performance issues of the rendering engine by implementing advanced rendering techniques, 3D objects compression and a machine learning 3D object classification.
- Decreased the running time of the 3D objects processing pipeline by more than 250% by distributing the server infrastructure on different nodes.
- The company reached more than 2.1 milion Swiss Francs in funding and was selected as one of the top 10 startup to look after.

Institute of Computational Science June 2018 – September. 2018
Junior Researcher Lugano, CH

- Contributed to the development of Utopia, a state-of-the-art High-Performance C++ parallel computing library to solve non-linear high-dimensional problems.
- Full source code available on the Project Maintainer's repository

EDUCATION

Università della Svizzera Italiana September 2019 – June 2022
Master in Computational Science Lugano, CH

- **Thesis**: Invasive species modeling via relational event models.
- **Coursework**: Stochastic Optimization, Numerical Analysis, PDE/ODE, Deep Learning.
- **GPA**: 7.66

Università della Svizzera Italiana September 2016 – June 2019
Bachelor in Informatics Lugano, CH

- **Project**: A robust pipeline to process 3D objects.
- **Coursework**: Data Structures, Algorithms, Databases, Computer Systems, Machine Learning.
- **GPA**: 7.45

PROJECTS

Autoregressive model study on the crypto market.

- A study on cryptocurrencies casual relationships and their casual direction using an Autoregressive model (VAR).
- The main research interest was in detecting the "big players" that dictate the directions of the market using advanced statistical tools.
- Full source code can be found on my personal GitHub profile.

3D Spectral Segmentation

- Designed and implemented a Blender's add-on to automatically detect 3D objects features using a custom Spectral Segmentation algorithm.
- The add-on received more than 200 downloads alongside a lot of positive feedback.
- Full source code can be found on my personal GitHub profile.

SKILLS

Programming languages:
Python C++, C#, OO
Javascript, Rust

Frameworks:
Numpy, Pandas, Scikit-learn, PyTorch, Cuda, OpenMPI, NodeJS, mongoDB, WebGL, ThreeJS

Deployments:
AWS, Kubernetes, Rancher, Docker, Linux

Languages:
Italian: Native
English: Full Professional Proficiency
Spanish: Conversational Proficiency
German: Basic Proficiency