

FRANCESCO GIORGIO DI FRANCO

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WORK EXPERIENCE

Flazio s.r.l.

Senior Full Stack Engineer

Catania

Dec 2024 - Present

- Design and development of Customer's AI Chatbot using OpenAI, LanggraphJs, PgVector. A multi AI agent application that provide an assistant API that, once enabled, is able to answer about public data (pages, contacts), ecommerce data such as products, shipping and payments methods.

ParkSmart s.r.l.

Tech Lead

Catania (remote)

Nov 22 - Oct 2024

- Design and development of psm-detector: an AI application made using Python, GStreamer, Nvidia Deepstream, and YoloV8 to do real-time detection.
- Design and development of the new edge data pipeline using Triton server and redis
- Design and development of the edge monitoring system using grafana agent
- SRE of the parksmart-platform: maintaining and configuring required infrastructure using terraform: VPC, EKS (Kubernetes, Flux, Istio, External-dns, cluster-autoscaler, let's encrypt, Grafana agent), Route53

Hopin l.t.d.

Senior Backend Engineer (Video)

London (remote)

Oct 2020 - Nov 2022

- Design and development of Livestream-platform highly scalable and highly available RTMP proxy to receive all customer streams and distribute using AWS IVS and MUX. The platform was made of a RestAPI interface built using TypeScript (TwirpTs + Express), gRpc, and AWS DynamoDB. The RTMP-proxy was built using Nginx, Nginx-RTMP, NodeJs, and ffmpeg. The platform was deployed in multiple regions with an active passive failover strategy using AWS Route53.
- Development of MTS (Media Transform Service): a service that exposes RestAPIs to process video (transcode, convert to HLS, captioning, trimming)
- Development of MAR (Media Asset Registry): a service for VOD (consume MTS APIs and distribute generated HLS using AWS Cloudfront)
- Development of Mixer: a web page recorder built using Puppeteer (chromium), WebSockets, and FFmpeg.
- SRE of the livestream-platform: maintaining and configuring required infrastructure using terraform: VPC, EKS (Kubernetes, Flux, Istio, External-dns, cluster-autoscaler, let's encrypt, Datadog agent, OT collector), Route53

ParkSmart s.r.l.

Full Stack Developer

Catania

Oct 2015 - Oct 2020

- Lead Backend Developer. Designer and developer of highly scalable and highly available microservices application, built in a hybrid architecture cloud-edge, to deliver real-time geolocated events to users, and manage edge devices and payments from users.
- FrontEnd Developer. Developer of a web dashboard to manage all events and devices
- Tech stack: ReactJS, Socket.io, Nodejs, MongoDB, AWS (S3, Lambda, IoT, DynamoDB, EKS), Kubernetes, GitlabCI.

Vicosystems s.r.l.

ML/BE Developer consultant

Catania

Sept 2017 - Oct 2020

- Development of an audio system for rainfall classification. Convolutional neural networks for audio classification of rainfall, processing audio signal as a 2D signal with Pytorch, PyAudio, Numpy, Pandas, RaspberryPI mod 3B+, and Amazon Web Services.
- Development of a platform to manage smart intercoms and do video calls when you are away using NodeJs, Python (Flask), Janus Web RTC Gateway, and Amazon Web Services.
- Backend Developer. Developed a platform to manage drones, copters, and rovers using ROS and NodeJs

SKILLS

Programming Languages:	TypeScript, Javascript, Python, C, Dart, Go
Databases:	PostgreSQL, Mysql / MariaDB, MongoDB, Dynamo DB, Redis
Frontend:	ReactJS, Vue, Angular 14+, Flutter, HTML5/CSS
Media frameworks / tools:	Gstreamer, Ffmpeg, Nvidia Deepstream
Cloud Technologies:	AWS, GCP, Kubernetes
AI:	Kubeflow, Pytorch, Numpy, Pandas
DevOps:	GitlabCI, GitHub Actions, FluxCD, ArgoCD
Monitoring:	Grafana, Prometheus, Tempo, Loki, Datadog
Infra:	Terraform + Terragrunt + Atlantis, Kustomize, Helm, Kustomize

PUBLICATIONS AND OPEN SOURCE CONTRIBUTIONS

SMILE: Smart Monitoring IoT Learning Ecosystem

https://www.researchgate.net/publication/339818489_SMILE_Smart_Monitoring_IoT_Learning_Ecosystem
February 2020, International Journal on Advanced Science Engineering and Information Technology 10(1):413

A Convolutional Neural Networks Approach to Audio Classification for Rainfall Estimation - IEEE Conference Publication

<https://ieeexplore.ieee.org/document/8924399>

September 2019, Technology and Applications (IDAACS), 2019 10th IEEE International Conference on Intelligent Data Acquisition and Advanced Computing Systems

BHJL13- Efficient Cryptosystems From 2k-th Power Residue Symbols

<https://github.com/cicciodifranco/2k-power-residue>

An implementation in C of BHJL13- Efficient Cryptosystems From 2k-th Power Residue Symbols

Egocentric shopping cart localization (Supermarket indoor localization) Pytorch, Numpy

Convolutional Neural Networks (CNN: Densenet, Alexnet, Squeezenet) to classify supermarket aisles, and predict coordinates by linear regression. Results: Accuracy of 87% on the test

HPC SHA-1 C, Nvidia CUDA

Distributed hashing algorithm based on SHA-1 using CUDA

lucasrochagit/nest-mongo-query-parser Typescript, MongoDB

<https://github.com/lucasrochagit/nest-mongo-query-parser>

Add regex search

RethinkRobotics-opensource/rosnodejs Javascript, ROS

<https://github.com/RethinkRobotics-opensource/rosnodejs>

Add udp support to ROS-NodeJs client

italia/spid-passport (archived) Javascript, PassportJS

<https://github.com/italia/spid-passport>

Full implementation of passport auth middleware for Italian GOV SAML2 (SPID)

EDUCATION

Università degli studi di Catania

MS Computer Science - Distributed Systems and Security, Grade: 110/110

Catania, IT

2016 - 2020

Università degli studi di Catania

BS Computer Science

Catania, IT

2011 - 2016