

Sebastiano Ferraris

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[Linkedin](#) • [Github](#) • [Blog](#) • [Google Scholar](#) • [Research Gate](#)

Data Scientist and Researcher 5+ years of experience in developing prototypes and algorithms, from proof of concept to production. Proven track records of implementing, validating, and scaling algorithms to solve a range of research and industrial problems. Keen on addressing the challenges around productionisation and algorithms continuous performance validation. Scientific author published in international journals.

Skills

Data analysis • pipeline automation • prototypes and POC • supervised and unsupervised ML • mathematical modeling • performance analysis • bottleneck analysis • packaging Python libraries • production-grade quality Python (scikit-learn, pandas, numpy, streamlit, DeckGL, KeplerGL) • Git (GitHub, GitLab) • Docker • CI/CD and automation • unit testing • contract testing • AWS • Fast API • Databricks.

Experience

June 2020 – June 2024
(company insolvency)

Data Scientist | [General System](#) | London, UK

Startup in stealth model until 2022. High performant real-time analytic platform for high volume (100+Bn) spatiotemporal data

- Designed and wrote production code for a novel, robust and linear-time clustering algorithm to detect dwells in mobility data with **Python, scikit-learn, pandas, numpy, streamlit, DeckGL, KeplerGL**.
- Developed a hierarchical density based algorithm prototype for spatiotemporal data.
- Created on-line and batch outlier detections and corrections algorithms for spatiotemporal data.
- Researched and prototyped two linear-time data fusion algorithms for detecting co-locations across multiple layers, such as AdTech, AIS and ADS-B datasets.
- Leveraged the algorithms described above to detect: dark vessels, crowds gathering, consumers' patterns, and cross visitations, setting up data processing pipelines with **Databricks** and the internally developed **Data Flow Index**.
- Worked closely with the Front and Back End production teams to turn prototypes into scaled up products, with **AGILE** and **twelve factor app** methodology, with **CI/CD, unittesting, integration testing, contract testing**.
- Won the first internal hackathon with a project on embedding satellite images into the General System's spatiotemporal platform.
- Supported customer success and marketing supporting the creation of visualizations and presentation materials.
- Open sourced [a python library and a series of examples](#) for analysts to interact with the General System's platform.
- Contributed to the [company blog](#) and presented prototypes and findings to stakeholders and potential clients.

SEPTEMBER 2019 – JUNE 2020

(LEFT DUE TO COVID-19 DISRUPTION IN THE HOSPITALITY INDUSTRY)

Algorithm Engineer | **Pace revenue management (now [flyr](#))** | London, UK

Startup providing predictive analytics and dynamic pricing for the hospitality industry in a cloud solution integrated in the PMS

- Part of the simulation and validation team.
- Participated in developing an **agent based simulation** aimed at validating the core prediction algorithm.
- Maintained **Python** and **SQLAlchemy** production code with the Back End team.
- Migrated production codebase from **Pandas** to **Dask** to improve scalability.

OCTOBER 2018 – JUNE 2019

(LEFT TO PURSUE A CAREER IN DATA SCIENCE MORE ALIGNED WITH MY STUDIES)

Back end developer | [Thought Machine](#) | London, UK

Cloud-native core banking solutions

- Member of the corporate infrastructure team aimed at developing the tools to enable deployment, testing and integration to increase developers speed.
- Contributed writing and improving the internal **Python CLI** to release and cloud deployment.
- Wrote and managed **jenkins** deployment **cron jobs**.
- Wrote a **Python** service to scrape **Phabricator** and sync its tickets into **JIRA**.

SEPTEMBER 2014 – SEPTEMBER 2018

MRes + PhD in medical image analysis | [UCL](#) | London, UK

Research student, CDT program (funded MRes + PhD) in medical imaging and bioengineering

- Implemented **ML models** and automated statistical analysis pipelines to quantify the negative effects of steroids administration in preterm birth, as part of a multi-disciplinary international research team.
- Developed a novel numerical analysis method to integrate **ODE** in diffeomorphic image registration.
- Published **7 peer reviewed papers** also on Neuroimage and Nature scientific report, about diffeomorphic image registration and Machine Learning to automate high resolution magnetic resonance images segmentation.
- Open sourced 12 Python libraries and one Micro MRI template dataset of 12 subjects manually segmented.

MARCH 2013 – JUNE 2014

(LEFT AFTER WINNING A PhD STUDENTSHIP AT UCL)

Industrial Simulation Modeller | [SimTec](#) | Turin, Italy

Discrete Event simulation for the Automotive Industry

- Developed material flow simulation models with **PlantSimulation** and **SimTalk** to estimate efficiency, remove bottlenecks and dimension buffers.
- Supported industrial plant layout design for a range of clients in Italy and Germany.
- Developed in-house shortest path algorithms for the internal and external logistics of assembly parts, to reduce lags in JIT manufacturing.
- Presented my results at the first annual Tecnomatix Plant Simulation User Conference in Stuttgart.

Selected Publications

- [Bourbaki vs Pragmatism: A methodological comparison through the multi-armed bandits problem](#) - preprint 2023
- [Accurate small deformation exponential approximant to integrate large velocity fields](#) CVPR 2020.
- [Early neuropathological and neurobehavioral consequences of preterm birth in a rabbit model](#) Nature scientific reports, 2019.
- [A magnetic resonance multi-atlas for the neonatal rabbit brain](#) Neuroimage, 2018.
- [Bruker2nifti: Magnetic resonance images converter from Bruker ParaVision to NiftI format](#) JOSS 2017.

Education

2015 - 2018 - **PhD, Centre for Doctoral Training (EPSRC), Medical Imaging** | [UCL](#) | London, UK

2014 - 2015 - **MREs, Centre for Doctoral Training (EPSRC), Medical Imaging** | [UCL](#) | London, UK

2010 - 2013 - **MSCi, Mathematics** | [Università degli Studi di Torino](#) | Turin, Italy

2006 - 2010 - **Bachelor's of Science, Mathematics** | [Università degli Studi di Torino](#) | Turin, Italy

Activities

Volunteering: Maths tutor for Action Tutoring, Scanner and Marshall for ParkRun • Classical guitar • Runner