

Michele Ferretti

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CURRENT POSITION

Senior Data Engineer Sept. 2022 - Now
NVIDIA, Munich, Germany

I leverage Location data to tackle complex challenges in the Autonomous Driving space.

EDUCATION

Ph.D. in Geography Nov. 2015 - May. 2021
Geocomputation, Geography Department, King's College London (United Kingdom)

Research topic: Unpacking the 'Smart City' through software engineering ethnographies.
Advisor: Dr. Jonathan Reades

Moving beyond abstract views on so-called 'Smart Cities', I researched the development of smart technologies, focusing in particular on geospatial applications. As part of my research I carried out two industrial internships, at Mapbox and at the IBM European Research Lab.

Master of Science in Urban Planning 2011 - 2013
Politecnico di Milano, Milano, Italy

Thesis: The Death of Distance in the Age of Urban Sensing.

Advisors: Prof. Philip McCann (Rijksuniversiteit Groningen), Prof. Valeria Fedeli and Prof. Ilaria Mariotti (Politecnico di Milano)

Final grade: *110/110 cum Laude.*

Postgraduate Course on 'Sistemi Informativi Territoriali e Governo del Territorio' 2012
Politecnico di Milano, Milano, Italy

Post-graduate courses on GIS and spatial analysis for territorial governance (fully funded via scholarship award).

Bachelor of Science in Environmental Science 2009-2012
Universita' degli Studi di Milano-Bicocca, Milano, Italy

Thesis: "Analisi del consumo di suolo, tramite fotografie aree Visibile-Infrarosso Vicino"
Land-use classification through Vis-NIR Remote Sensing techniques.

Advisor: Prof. Roberto Colombo.

EXPERIENCE

Machine Learning Scientist Jan. 2021 - Sept. 2022
Booking.com, Amsterdam, The Netherlands

As Machine Learning Scientist in the Geo product team, I worked on the core mapping and location technologies. My responsibilities included:

- develop ML products exploiting geo-features and spatially explicit models
- scale and enrich the spatial data catalogue via automated map making
- design, build and maintain pipelines and ad-hoc software tooling

Data Scientist May 2019 - Jan. 2021

Booking.com, Amsterdam, The Netherlands

Within the Content Agency team, I supported the creation, maintenance and quality assessment of spatial data products, working at scale and using state-of-the-art models and techniques.

Visiting Data Scientist

Jan. 2018 - June 2018

FBK - Fondazione Bruno Kessler, Trento, Italy

Researched novel Machine Learning methods combining location-based social media with semantic data. Contributed to the development of an ad hoc Python package to deploy the above in Urban Computing/Data Science applications.

Research Fellow

May 2017 - Sept. 2017

Mapbox

Embedded with the Cities team, I followed closely the strategy design and technical implementation of "Smart City" products, supporting the team leader and regularly taking part in client meetings, Scrums and project sprints.

Research Scientist Intern

June 2016 - Sept. 2016

IBM Research, Dublin, Ireland

Supervisors: Dr. Francesco Calabrese and Dr. Rahul Nahir

Data Visualisation of a machine-learning model to predict mass-migration flows in Europe. The internship results have also been published in the PKDD paper "A multi-scale approach to data-driven mass migration analysis" (Ahmed, 2016)

PROJECTS

ACHILLES

Nov. 2017 - now

Data Visualisation & Front-end Developer

ACHILLES is a web-based tool for transportation planning, based on a Multi-Layer Network representation. It allows a non-user expert to rapidly visualise and assess a transport system's resilience to traumatic events such as floods and congestion. It has been awarded 2nd place at CIKM'17 - DataSpark Mobility Challenge.

KCL Code Camp

June 2016 - August 2016

King's College London, UK

Developed a set of instructional *Github*-based *Jupyter Notebooks*, to start KCL Geocomputation Pathway 1st year students on using the Python programming language. The course is Open Source (MIT licensed) and available at [KCL Code Camp](#).

Invisible Cities

Nov. 2016

Developer

A collaborative creative technology project where a GANN has been trained to translate map tiles and hand-drawn sketches into generative satellite images for the cities of Venice and Los Angeles.

King's Humanitarian Mappers

Jan. 2016 - now

Co-founder & Co-organizer

Drawing from a larger global movement of *digital humanitarians* together with KCL colleagues I run a bi-weekly *mapping marathons* to help researchers and NGOs in preparedness and response initiatives.

Maptime! Milan

2014 - 2016

Founder & Organizer

I started and managed for 2 years the Maptime! meetup chapter in Milan, an open learning environment for everything related to Geospatial technologies. I curated the meetings' contents, organised workshops' logistics and delivering public talks and tutorials.

SKILLS

Programming Languages and Frameworks

- PySpark, Hadoop, PostgreSQL, Python, AWS (EC2, S3, λ ...) Working Knowledge
- PyTorch, Tensorflow, Apache Airflow, MIFlow, H2O
- Bash(Zsh), Javascript (ES5/6/7) + NodeJS, R, C++, Java, Basic Knowledge

Geographic Softwares and Frameworks

- GeoParquet, Apache Sedona, PostGIS, GDAL, GeoPandas, QGIS, ArcGIS, Postgres, PySal, OSMNX, TurfJS, MapboxGLJS, LeafletJS, Working Knowledge
- GRASS, ENVI Basic Knowledge

LANGUAGE

- Italian Mother Tongue
- English Professional proficiency
- Spanish Limited working proficiency

PUBLICATIONS

- "Weak nodes detection in urban transport systems: Planning for resilience in Singapore." *Ferretti, Michele, et al. arXiv preprint arXiv:1809.07839 (2018).*
- ACHILLE: a visual data-driven and network-based tool for transportation planning and simulation; *M.Ferretti, L.Pappalardo, G.Barlacchi and L.Lepri - CIKM'17*
- An Alternative Approach To Model Urban Regional Growth: Integrating Ctl* Logic And Human Mobility Dynamics In The City Of Wuhan *M.Ferretti, J.C. Afandor - 4th DACAS Conference on "Cities as Complex Adaptive Systems"*
- An exploratory analysis of ethnic groups in the city of Milan through mobile phone data; *G.Barlacchi, M.Ferretti, B.Lepri and F.Manfredini - NetMob [poster] 2017*
- A multi-scale approach to data-driven mass migration analysis [Work done during IBM's internship]; *M. Ahmed et al. - SoGood Workshop - ECML PKDD 2016*

HONOURS AND AWARDS

- 2nd Place at the DataSpark Mobility Challenge organized by the International Conference on Information and Knowledge Management (CIKM) - Singapore (Nov. 2017);
- King's Award for Excellence in Innovation and Impact (Feb. 2017);
- The "Professor Sir Richard Trainor" PhD scholarship funding (Oct. 2015);
- Outstanding Thesis Award (Stefano Pieracci, XVIII^o Edition, AISRe (ERSA Italian Chapter), (June 2013);
- "Sistemi Informativi Territoriali e Governo del Territorio" postgraduate course scholarship, POLIMI (2011).