Marco De Nadai

Contact Information

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Actual Position

Ph.D. student in Computer Science
University of Trento - Fondazione Bruno Kessler, Italy
I use data mining to describe and predict the behaviour of people in the city, extracted from mobile phone data. I also study the characteristics of city fusing multi-modal information such as census, geographical data, satellite and Google Street view images, but also GPS locations and Call Detail Records (CDRs). *Expected degree*: May 2019.
Advisors: Dr. Bruno Lepri and Prof. Nicu Sebe

Research Affiliate
Data-Pop Alliance, New York (USA)

Education

Master's degree in computer science, 110L/110, summa cum laude — 2015
Università degli Studi di Trento, Italy

Exchange Master's student — 2014
Vrije Universiteit Amsterdam, The Netherlands

Bachelor's degree in computer science, 100/110 — 2012
Università degli Studi di Udine, Italy

Work Experience

Research scientist intern — 2018
Vodafone, London (UK)
People's mobility, GPS locations, mobile applications usage. Apache Spark ETL.

Visiting student - Research — 2016
Massachusetts Institute of Technology (MIT), Massachusetts (USA)
Spatial networks, social studies, urban planning, mobile phone data, crime prediction.

Data scientist — 2015
Fondazione Bruno Kessler, Italy
City science, mobile phone data, behaviour prediction, deep learning.

Data scientist intern - Research — 2014 – 2015
Telecom Italia, Italy
Mobile phone data, hotspots, socio-economic predictions.

Machine Learning intern — 2014
University of Amsterdam, The Netherlands
Artificial Neural Networks, anomaly detection, energy consumption.

Publications

M. De Nadai and B. Lepri. **The economic value of neighborhoods: Predicting real estate prices from the urban environment**. In *DSAA '18*, 2018

M. De Nadai, R. Vieriu, G. Zen, S. Dragicevic, N. Naik, M. Caraviello, C. A. Hidalgo, N. Sebe, and B. Lepri. **Are Safer Looking Neighborhoods More Lively? A Multimodal Investigation into Urban Life**. In *MM '16*, pages 1127–1135. ACM, 2016

M. De Nadai, J. Staiano, R. Larcher, N. Sebe, D. Quercia, and B. Lepri. **The Death and Life of Great Italian Cities: A Mobile Phone Data Perspective**. In *WWW '16*, pages 413–423, 2016

S. Centellegher, M. De Nadai, M. Caraviello, C. Leonardi, M. Vescovi, Y. Ramadian, N. Oliver, F. Pianesi, A. Pentland, F. Antonelli, and B. Lepri. **The Mobile Territorial Lab: A multilayered and dynamic view on parents' daily lives**. *EPJ Data Science*, 5(3), 2016

G. Barlacchi, M. De Nadai, R. Larcher, A. Casella, C. Chitic, G. Torrisi, F. Antonelli, A. Vespignani, A. Pentland, and B. Lepri. **A multi-source dataset of urban life in the city of Milan and the Province of Trentino**. *Scientific data*, 2015

M. De Nadai and M. van Someren. **Short-term anomaly detection in gas consumption through ARIMA and Artificial Neural Network forecast**. In *EESMS '15*, pages 250–255. IEEE, 2015

Scholarships and awards

Microsoft Azure Research Award 2017
€ 20,000.00 to accelerate my research with Azure cloud computing credits.

Italian Football Federation Match Analysis competition 2017
€ 5,000.00 for a project analysing the football matches with NLP techniques.

Computational Social Science Summer school scholarship 2017
Travel grant and free accommodation for my participation to the school.

ACM Multimedia 2016 student travel grant 2016
€ 750.00 to support my personal attendance at the conference.

Google travel grant for WWW 2016 2016
$ 625.00 to support my personal attendance at the conference.

Best Master's student 2016
University of Trento.

Summer Schools

Computational Social Science Summer school, *Sant'Antioco (CA), Italy.* 2017

Complex networks: theory, methods, and applications, *Como, Italy.* 2016

Other activities

Reviewer *Plos one, Ubicomp, KDD, EPJ Data Science, DAMI, JOSIS, GeoJournal.*

Program committee member *ACM MM 2019, ICDCS 2018, DAPS 2017.*

Ph.D. Projects

Generative Adversarial Networks (GANs) for urban spaces
Ongoing work 2019

We represent each neighbourhood through a metric of success and an aerial image that describes the built environment and the characteristics of the Point of Interests. Thanks to a Conditional GAN, an input image of a neighbourhood is modified by the model to propose *what* and *where* the neighbourhood might be modified to make it successful.

Application usage and mobility of hundreds thousands of people
Ongoing work 2019

We model the application usage and mobility of people through the analysis of the mobile application usage data and GPS locations of 400,000 individuals over six months.
Paper: https://bit.ly/2ICWEBE

Data fusion: GIS, mobile phone, census and crime data
Ongoing work 2017

We use a MCMC Bayesian regression model to explore how geo-located crime data is related with the socio-economic, spatial and mobility characteristics of the neighbourhoods of four cities in the world.

Background

Certifications: Scalable Machine Learning with Apache Spark, DeepLearning.ai course
Advanced knowledge: Python, SQL (especially PostgreSQL), PostGIS, PHP, Javascript, HTML5, CSS3, QGIS
Medium knowledge: C, Java, PyTorch, Stan

Languages

English: good (B2/C1 level)
Italian: native