



# Pierdomenico Fiadino, PhD

Data Science Lead at Zeelo (zeelo.co)

*curriculum vitae*

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## Personal information and contacts

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<b>Birthday</b>	June 18 <sup>th</sup> , 1987	<b>Citizenship</b>	Italian
<b>Work mail</b>	piero@zeelo.co	<b>LinkedIn</b>	<a href="http://linkedin.com/in/fiadino">http://linkedin.com/in/fiadino</a>
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<b>Home addr.</b>	Barcelona	<b>Work addr.</b>	Zeelo Barcelona WeWork (Luxa), c/ Tánjer-Badajoz 08018 Barcelona, Spain

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## Overview

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I work as **Data Science Lead at Zeelo**, an on-demand coach service whose mission is to make collective transport smart and data-driven. At Zeelo, I lead the efforts of developing an advanced AI platform that predicts the transport demand through the analysis of different data sources. Its ultimate goal is to automatically schedule direct routes, establish pick up points and define dynamic time tables.

Before Zeelo, I have worked as Data Scientist in research and technology centers. In my **9 years' experience in the field of data analytics** I acquired and mastered data-oriented skills and a practical know-how in a number of application fields, ranging from the study of human behavior (applied to mobility, web surfing, quality of experience and more) to the development of machine learning systems to diagnose computer network impairments.

My **PhD studies at the Technical University of Vienna (Austria)** helped me complementing my profile with a theoretical and research-oriented attitude. During my PhD, I have authored more than 30 scientific publications in major international conferences (ACM SIGCOMM, ACM CoNEXT, IEEE INFOCOM, ITC, PAM, etc.) and journals (IEEE TNSM, IEEE COMMAG).

**My research interests include:** data science, machine learning, big data, human mobility, geographical information systems, network analytics, network monitoring, anomaly detection, business intelligence.

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## Education

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<b>PhD</b> (2012 – 2015)	<b>Doctorate Degree (PhD) in Electrical Engineering and Information Technology</b> Vienna University of Technology (TUWien), Vienna, Austria - Institute of Telecommunications <b>Thesis:</b> <i>Traffic Characterization, Anomaly Detection and Diagnosis in Internet Scale Services</i> <b>Supervisors:</b> Prof. Dr. Tanja Zseby, Dr. Pedro Casas
<b>MSc</b> (2008 – 2010)	<b>Master of Science (MSc) in Computer Engineering (magna cum laude)</b> Sapienza University of Rome, Rome, Italy - Faculty of Engineering <b>Thesis:</b> <i>Extracting Mobility Information from Cellular Data: An Empirical Analysis</i> <b>Supervisors:</b> Prof. Dr. Fabio Ricciato, Prof. Dr. Francesca Cuomo
<b>BSc</b> (2005 – 2008)	<b>Bachelor of Science (BSc) in Computer Engineering</b> Sapienza University of Rome, Rome, Italy - Faculty of Engineering <b>Thesis:</b> <i>Design and Implementation of a Java Application for P2P File Sharing</i>

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## Languages

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<b>Italian</b>	mother tongue
<b>English</b>	full professional proficiency
<b>Catalan</b>	high proficiency
<b>Spanish</b>	basic knowledge, currently studying

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## Work Experience

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- 2018 – current** **Data Science Lead**  
at **Zeelo (Barcelona, Spain and London, UK)**
- **Business Intelligence**: providing company-wide insights and statistics for business development, operations, marketing
  - Leading the **development of an AI platform** for dynamic and data-driven transport services
- 2016 – 2018** **Senior Data Scientist (Big Data Analytics Unit)**  
at **Eurecat, Technology Centre of Catalonia (Barcelona, Spain)**
- **BI, Cellular Networks, Mobility, Intelligent Transport Systems, Smart City, IoT**
  - **Big Data platforms, Machine Learning, statistical inference, data quality assessment, data strategy planning.**
- 2010 – 2015** **Network Data Scientist (Computer Networks Area)**  
at the **Telecommunications Research Center of Vienna (Vienna, Austria)**
- **Commercial and research projects** in the field of network data monitoring/analysis, human mobility in collaboration with major **Internet Service Providers.**
  - **Machine Learning and Data Mining** techniques applied to large amount of heterogeneous network data (cellular and fixed-line) to infer human activities (web surfing, mobility, etc.).
- 2010** **Intern (Computer Networks Area)**  
at the **Telecommunications Research Center of Vienna (FTW), Vienna, Austria**
- Empirical exploratory studies on cellular network signaling for human mobility in **Intelligent Transport Systems (ITS) projects.**

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## Skills

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- General Skills**
- Scientific and technical writing capabilities
  - Ability to effectively communicate results, through presentations and deliverables. Long experience in public presentations gained in international conferences
  - Project management and team leading
  - Professional English language
  - Affinity with multicultural environments
  - Research-orientation with structured approach and problem-solving attitude
  - Willingness to investigate new engineering/research topics and acquire new skills
- Development**
- High proficiency in Python, SQL, Perl, AWK
  - Java, JavaScript, C/C++
  - Inclination to quickly learn new programming languages
- Data Analytics Big Data and Visualization**
- Relational Databases (PostgreSQL, Maria DB, etc.)
  - Big Data Platforms (Hadoop, Hive, PySpark)
  - Machine Learning Frameworks (Scikit-learn, Weka)
  - Geographical Analysis Tools (PostGIS, HadoopGIS, GeoPandas, Carto)
  - Data Exploration (Jupyter Notebook)
  - Graph Analysis (Gephi)
  - Plotting Tools and Libraries (Matplotlib, Seaborn, Holoviews, Bokeh)
  - Data Analysis and Scientific Libraries (Pandas, NumPy, SciPy, etc.)
- Other IT Skills**
- Markup Languages (Latex, Markdown, HTML, CSS)
  - Version Control Systems (git, SVN)
  - Bash scripting
  - Unix Systems Administration
  - Database Design and Administration

### Journal Papers and Book Chapters

- [B1] P. Fiadino, M. Torrent-Moreno  
["Big Data in Mobile Networks"](#)  
 Big Data Encyclopedia of Big Data Technologies (Springer), 2018
- [J4] P. Fiadino, P. Casas, A. D'Alconzo, M. Schiavone, A. Bär  
["Grasping Popular Applications in Cellular Networks with Big Data Analytics Platforms"](#)  
 IEEE Transactions of Network and Service Management (TNSM), 2016
- [J3] A. Bär, P. Casas, A. D'Alconzo, P. Fiadino, L. Golab, M. Mellia, E. Schikuta  
["DBStream: A Holistic Approach to Large-Scale Network Traffic Monitoring and Analysis"](#)  
 Computer Networks (S.I. on Machine learning, Data Mining and BigData Frameworks for Network Monitoring and Troubleshooting), 2016
- [J2] P. Casas, P. Fiadino, S. Wassermann, S. Traverso, A. D'Alconzo, E. Tego, F. Matera, M. Mellia  
["Unveiling Network and Service Performance Degradation in the Wild with mPlane"](#)  
 IEEE Communication Magazine, Network Testing and Analytics Series, 2016
- [J1] P. Casas, A. D'Alconzo, P. Fiadino, A. Bär, A. Finamore, T. Zseby,  
["When YouTube doesn't Work – Analysis of QoE-relevant Degradation in Google CDN Traffic"](#)  
 IEEE Transactions on Network and Service Management (TNSM), vol. 11, no. 4, 2014

### Conference Papers

- [C27] P. Fiadino, V. Ponce-Lopez, J.A. Torro-Gonzalez, M. Torrent-Moreno, A. D'Alconzo  
["Call Detail Records for Human Mobility Studies: Taking Stock of the Situation in the Always Connected Era"](#)  
 ACM SIGCOMM 2017 Workshop on Big Data Analytics and Machine Learning for Data Communication Networks, Los Angeles, USA, 2017
- [C26] P. Casas, A. D'Alconzo, G. Settanni, P. Fiadino, F. Skopik  
["\(Semi-\)Supervised Machine Learning Approaches for Network Security in High-Dimensional Network Data"](#)  
 ACM Conference on Computer and Communications Security (ACM CCM 2016), Vienna, Austria, 2016
- [C25] P. Casas, P. Fiadino, A. D'Alconzo  
["Machine-Learning Based Approaches for Anomaly Detection and Classification in Cellular Networks"](#)  
 6th ACM MOBICOM Workshop on All Things Cellular: Operations, Applications and Challenges (ATC), New York, 2016
- [C24] P. Casas, P. Fiadino, A. D'Alconzo  
["When Smartphones become the Enemy: Unveiling Mobile Apps Anomalies through Clustering Techniques"](#)  
 Traffic Monitoring and Analysis (TMA2016), Louvain La Neuve, Belgium, 2016
- [C23] P. Casas, A. D'Alconzo, P. Fiadino, C. Callegari  
["Detecting and Diagnosing Anomalies in Cellular Networks using Random Neural Networks"](#)  
 The 7th International Workshop on Traffic Analysis and Characterization (TRAC2016), Paphos, Cyprus, 2016
- [C22] P. Fiadino, A. D'Alconzo, M. Schiavone, P. Casas  
["Challenging Entropy-based Anomaly Detection and Diagnosis in Cellular Networks"](#)  
 (Student Research Competition Runner Up), ACM SIGCOMM2015 Demo/Poster session, London, UK, 2015
- [C21] P. Fiadino, A. D'Alconzo, M. Schiavone, P. Casas  
["RCATool – A Framework for Detection and Diagnosis Anomalies in Cellular Networks"](#)  
 27th International Teletraffic Conference (ITC 27), Ghent, Belgium, 2015
- [C20] P. Fiadino, M. Schiavone, A. D'Alconzo, P. Casas  
["Towards Automatic Detection and Diagnosis of Internet Service Anomalies via DNS Traffic Analysis"](#)  
 International Wireless Communications & Mobile Computing Conference, (IWCMC 2015), Dubrovnik, Croatia
- [C19] P. Casas, M. Varela, P. Fiadino, M. Schiavone, H. Rivas, R. Schatz,  
["On the Analysis of QoE in Cellular Networks: from Subjective Tests to Large-scale Traffic Measurements"](#)  
 International Wireless Communications & Mobile Computing Conference, (IWCMC 2015), Dubrovnik, Croatia
- [C18] P. Casas, P. Fiadino, M. Schiavone  
["QoMOSN - On the Analysis of Traffic and Quality of Experience in Mobile Online Social Networks"](#)  
 European Conference on Networks and Communications (EuCNC 2015), Paris, France, 2015
- [C17] P. Fiadino, P. Casas, M. Schiavone, A. D'Alconzo  
["Online Social Networks Anatomy: on the Analysis of Facebook and WhatsApp in Cellular Networks"](#)  
 IFIP Networking 2015, Toulouse, France, 2015
- [C16] P. Fiadino, M. Schiavone, P. Casas  
["Vivisecting WhatsApp in Cellular Networks: Servers, Flows, and Quality of Experience"](#)  
 Traffic Monitoring and Analysis (TMA 2015), Barcelona, Spain, 2015
- [C15] M. Schiavone, P. Romirer, P. Fiadino, P. Casas  
["Diagnosing Device-Specific Anomalies in Cellular Networks"](#)  
 ACM CoNEXT 2014 Student Workshop, Sydney, Australia, 2014
- [C14] P. Casas, P. Fiadino, A. Sackl, A. D'Alconzo  
["YouTube in the Move: Understanding the Performance of YouTube in Cellular Networks"](#)  
 (Best Paper Award Runner Up), Wireless Days 2014 Conference (WD2014), Rio de Janeiro, Brazil, 2014
- [C13] P. Casas, A. D'Alconzo, P. Fiadino, A. Bär, A. Finamore  
["On the Analysis of QoE-based Performance Degradation in YouTube Traffic"](#)  
 10th International Conference on Network and Service Management (CNSM2014), Rio de Janeiro, in Brazil, 2014
- [C12] P. Fiadino, A. D'Alconzo, A. Bär, P. Casas, A. Finamore  
["On the Detection of Network Traffic Anomalies in Content Delivery Network Services"](#)  
 26th International Teletraffic Conference (ITC26), Karlskrona, Sweden, 2014
- [C11] P. Fiadino, M. Schiavone, P. Casas  
["Vivisecting WhatsApp through Large-Scale Measurements in Mobile Networks"](#)  
 ACM SIGCOMM2014 Demo/Poster session, Chicago, USA, 2014
- [C10] P. Casas, P. Fiadino, A. Bär, A. D'Alconzo, A. Finamore, M. Mellia,  
["YouTube All Around: Characterizing YouTube from Mobile and Fixed-line Network Vantage Points"](#)  
 The European Conference on Networks and Communications (EuCNC2014), Bologna, Italy, 2014

- [C9] P. Fiadino, A. D'Alconzo, P. Casas  
["Characterizing Web Services Provisioning via CDNs: The Case of Facebook"](#)  
 The 5th International Workshop on Traffic Analysis and Characterization (TRAC2014), Nicosia, Cyprus, 2014
- [C8] A. D'Alconzo, P. Casas, P. Fiadino, A. Bär, A. Finamore  
["Who to Blame when YouTube is not Working? Detecting Anomalies in CDN-Provisioned Services"](#)  
 The 5th International Workshop on Traffic Analysis and Characterization (TRAC2014), Nicosia, Cyprus, 2014
- [C7] P. Casas, P. Fiadino, A. Bär  
["Understanding HTTP Traffic and CDN Behavior from the Eyes of a Mobile ISP"](#)  
 Passive and Active Measurements Conference (PAM2014), Los Angeles, USA, 2014
- [C6] P. Casas, P. Fiadino, A. Bär  
["IP Mining: Extracting Knowledge from the Dynamics of the Internet Addressing Space"](#)  
 (Best Paper Award), The 25th International Teletraffic Congress (ITC2013), Shanghai, China, 2013
- [C5] P. Casas, P. Fiadino  
["Mini-IPC: A Minimalist Approach for HTTP Traffic Classification using IP Addresses"](#)  
 The 4th International Workshop on Traffic Analysis and Classification (IWCMC2013), Cagliari, Italy, 2013
- [C4] P. Fiadino, A. Bär, P. Casas  
["HTTPtag: A Flexible On-line HTTP Classification System for Operational 3G Networks"](#)  
 IEEE Infocom Demo/Poster Session, Turin, Italy, 2013
- [C3] S. Ruehrup, D. Valerio, P. Fiadino, F. Ricciato, D. Elias, B. Rainer, and W. Wiedermann  
["Macro-mobility patterns from cellular network data"](#)  
 The 19th ITS World Congress (ITS 2012), Vienna, Austria, 2012
- [C2] D. Elias, F. Nadler, D. Valerio, P. Fiadino  
["Acquisition of Traffic and Mobility Data Based on Cellular Network Signaling"](#)  
 The 19th ITS World Congress (ITS 2012), Vienna, Austria, 2012
- [C1] P. Fiadino, D. Valerio, F. Ricciato, and K. A. Hummel  
["Steps towards the Extraction of Vehicular Mobility Patterns from 3G Signaling Data"](#)  
 Traffic Monitoring and Analysis (TMA 2012), Vienna, Austria, 2012

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### Other Research Activities

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I am a member of the Technical Program Committee (TCP) of the following international conferences and workshops:

- [IFIP Network Traffic Measurement and Analysis Conference](#) (2017, 2018)
- [IEEE Traffic Analysis and Characterization Workshop TRAC](#) (2017)
- [ACM SIGCOMM Workshop on Big Data Analytics and Machine Learning for Data Communication Networks](#) (2017)

I have reviewed a number of papers for the following journals and conferences:

- [Journal of Intelligent Information Systems](#) (2018)
- [Elsevier Computer Communications](#) (2017)
- [IEEE Communication Letters](#) (2017)
- [International Teletraffic Congress](#) (2016)
- [Elsevier Information Systems](#) (2016)
- [ACM International Journal of Network Management](#) (2016)
- [IEEE Transactions on Network and Service Management](#) (2014, 2015, 2016, 2017)
- [Computer Networks, Elsevier](#) (2015, 2016, 2017)
- [Knowledge and Information Systems, Elsevier](#) (2015)
- [IEEE INFOCOM Demo Session](#) (2013)

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### PhD Schools / Intensive Courses

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- 2015** [Traffic Monitoring and Analysis \(TMA\) School](#) at Universitat Politècnica de Catalunya (UPC), Barcelona
- 2014** [Traffic Monitoring and Analysis \(TMA\) School](#) at Queen Mary University, London, United Kingdom  
[Data Storm Big Data School](#) at Instituto Superior Técnico, Lisbon, Portugal
- 2013** [Big-Data Algorithms and Applications to Traffic Measurements School](#) at Politecnico di Torino, Turin, Italy

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### Trainings

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- 2012** [Communication and Social Skills](#) *Trainer:* Maryam Bigdeli, MEC&T Skala-Bigdeli GmbH
- 2011** [Research project management I](#) *Trainer:* Dr. Erich Prem, Eutema Technology Management GmbH
- 2010** [Writing successful research proposals](#) *Trainer:* Dr. Erich Prem, Eutema Technology Management GmbH

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### Awards

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- 2015** [Travel Grant at ACM SIGCOMM 2015](#), London, UK  
[ACM Student Research Competition Runner up 2015](#), London UK
- 2014** [Travel Grant at ACM SIGCOMM 2014](#), Chicago, USA  
[Best Paper Award Runner Up at Wireless Days 2014](#), Rio de Janeiro, Brazil
- 2013** [Best Paper Award at International Teletraffic Congress 2013](#), Shanghai, China

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### Hobbies and Interests

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I am passionate about any topic regarding science and technology. I particularly care about causes related to digital rights, open source software and environment. My spare time is dedicated to motorcycle riding, collecting vinyl, listening to classic rock and, most of all, to my sons Pau and Carlo.