

## Professional Experience

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- **F Hoffman-La Roche**, Basel, Switzerland
  - **Senior data analyst and data team co-lead**  
FEB 2019 - PRESENT  
Data analysis team lead in the Multiple Sclerosis disease area (currently 14 members).  
R&D data and algorithms product owner for the Floodlight solution, a regulated Software as a Medical Device for the measurement of cognitive, upper and lower limbs functional domains in Multiple Sclerosis.  
Co-developed and supported execution of strategy for the verification and analytical validation to support submission to regulatory authorities. Responsible for end-to-end data requirements and data flow.  
Developed a signal processing pipeline for PPG signal analysis to estimate HRV as a proxy for stress and anxiety.
- **Biovotion (Now part of Biofourmis)**, Zurich, Switzerland
  - **Senior data scientist**  
DEC 2016 - JAN 2019  
Conceptualised and developed a digital framework for characterising the influence of behaviour on health along different time scales using physiological and contextual data sources (Patent 18726715.8-1115).  
Developed software within agile methodologies in a medical regulated environment (ISO 13485, IEC 62304, QCBD).
  - **Data scientist**  
SEP 2014 - NOV 2016  
Developed and deployed algorithms for medical grade vital signs monitoring on the upper arm with PPG technology (pulse rate, SpO2, respiratory rate, energy expenditure).  
Co-development of protocols for clinical trials used to collect data for vital signs validation and report creation for CE medical and FDA clearance submissions (The Everion device is listed as a Class II medical device exempt from the 510(k) notification)
- **M31 (WearIT)**, Padova, Italy
  - **Data scientist**  
NOV 2014 - AUG 2015  
Lead of analytics activities for a wearable smart-watch with a sport product-market fit. Including GPS and IMU sensors integration and application of supervised machine learning for gesture detection from inertial sensors. Used physiological models for non-invasive energy expenditure estimation in professional athletes for high performance sports.
- **National University of Ireland**, Maynooth, Ireland
  - **Post-doc researcher**  
JUL 2013 - AUG 2014  
Research on the statistical properties of different methods to select informative inputs in regression and classification problems. Machine-learning and statistical analysis for business intelligence in industrial applications. (Partners: SeaGate Technology LLC., Trend Technologies Ltd. and Amgen)
- **University of Padova**, Padova, Italy
  - **Research fellow**  
FEB 2013 - JUN 2013  
Improved the accuracy of glucose sensors and developed algorithms for drowsiness monitoring based on single channel EEG analysis.
  - **Ph.D. in Information Technology**  
JAN 2010 - JAN 2013  
“Non-invasive continuous glucose monitoring: Identification of models for multi-sensor systems”  
<http://goo.gl/I4DpBF>.

Algorithm development and application of machine learning tools for continuous physiological monitoring: Non-Invasive: Glucose and Stress (Partner: Biovotion AG,), EEG based drowsiness detection. Invasive: Improved accuracy of Intensive Care Unit device (GlucoClear) for glucose monitoring (Partner: DexCom Inc.)

- **Research fellow**

APR 2009 - DEC 2009

Developed algorithms and models for non-invasive continuous glucose monitoring.

## Education

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Jan 2010-Dec 2012    **Ph.D. in Information Technology** at the University of Padova, Italy

Oct 2006-Mar 2009    **M.Sc. (cum laude) in Bioengineering** at the University of Padova, Italy

Oct 2003-Sep 2006    **B.Sc. in Biomedical Engineering** at the University of Padova, Italy

## Skills

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- **Soft**

Excellent written and spoken communicator, team work, self-starter, empathy, self-motivated.

- **Work methodologies**

Software version system (GIT, SVN), lean and agile methodologies tools (JIRA).

- **Software**

Matlab, Python, R, C, SQL

- **Machine Learning**

Supervised linear and non-linear regression and classification methods (Deep ANN including GAN architectures with tensorflow and keras, SVM, Regularization and Bayesian approaches to sparse problems, Kernels). Unsupervised data analysis methods (K-means, DBscan, HMM, t-sne).

- **Digital Signal Processing and System identification**

On-line time series analysis (filter design, wavelet, prediction, FFT, ARIMA models, etc.).

- **Feature Extraction and selection**

Univariate and multivariate tools (Spectral analysis, Chaos theory, PCA, ICA).

- **Data Visualization**

Principles of data visualization and display of quantitative information according to E. Tufte work.

## Additional information

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- Authors of 11 scientific publications in peer-reviewed scientific journals (5 as first author) and 18 contributions to international engineering and medical conferences (see the link at google scholar profile on my website [mattiabl.github.io](https://mattiabl.github.io))

- Co-inventor of 6 patents.

- Chartered Engineer qualification obtained in 2012.

- 5 years student scholarship (2003-2008) from ESU.

## Languages

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Italian: mother tongue

English: fluent (C1)

German: basic (A2)

## Hobbies and Memberships

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Ski and triathlon lover, espresso and pizza addicted.

Active member of the Italian and Swiss Blood Donor Associations.