# Mattia Zanon, PhD

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## Professional Experience

- **F Hoffman-La Roche**, Basel, Switzerland

    - **Senior data analyst and data team co-lead**
    FEB 2019 - PRESENT
    Data analysis team co-load 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 for submission to regulatory authorities. Responsible for end-to-end data architecture 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/l4DpBF.
    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

- **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, OS management, Versioning systems (SVN, GIT), MS Office. R, Python, 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

- Authors of 11 scientific publications in peer-reviewed scientific journals (5 as first author) and 14 contributions to international engineering and medical conferences (see the link at google scholar profile on my website 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

Ski and triathlon lover, espresso and pizza addicted.
Active member of the Italian and Swiss Blood Donor Association.