Francesca Romana Cavallo

London, UK • frcavallo.uk@gmail.com • Linkedin

Summary

Research Associate in Biostatistics and Epidemiology, with a strong foundation in healthcare data science. Former Senior Data Scientist with two years of industry experience and four years of academic research in statistics and machine learning. Experienced in working collaboratively with multidisciplinary teams to address complex, real-world problems at the intersection of health and data science.

Areas of expertise

Machine and deep learning | Statistics | Computer science | Python | R | Cloud computing | HealthTech

Work Experience

Imperial College, London, UK
Research associate, 02/2025-Present

- Researcher in the Epidemiology and Biostatistics department, applying advanced analytical methods to advance the understanding of mental health disorders.

Optum, London, UK
Senior Data Scientist, 02/2023-02/2025

- Delivered 4 predictive models and 2 statistical models by owning the model development process from initial problem definition to deployment
- Executed the end-to-end data science lifecycle for a consulting project with an external customer and developed a tool trialled by 5 GP practices
- Prototyped a healthcare admin automation tool leveraging LLMs and currently developing it into a product projected to save ~£500k yearly
- Cultivated strategic relationships with 15+ stakeholders across 4 business functions, resulting in streamlined processes and shortened project timelines
- Filed 1 patent to the US Patent and Trademark Office
- Medical device (AI as med device) registration

Entrepreneur First London, UK
Founder-in-Residence, 10/2022-11/2022

- Selected from 1000+ applicants to work with a community of entrepreneurs and leading advisors to find a co-founder, and build a company from scratch
- Tested 2 co-founding partnerships and several ideas in the health-tech space
- Gained skills in customer development, pitching, and business development

Government Office for Science London, UK
UKRI Policy Intern, 04/2022-06/2022

- Part of the Engagement Team within the Covid-19 Inquiry Team
- Delivered support and engagement plans for internal staff and external advisors
- Successfully managed relationships with various stakeholders and senior management

- Implemented a stakeholder management tool that was adopted by the department

DnaNudge, London, UK
Research Consultant, 01/2019-01/2020

Led the planning and execution of a user trial for a proprietary wearable device, managing participant documentation, data collection, and data analysis. Completed a feasibility study and developed a system to extract and analyse accelerometer data.

DnaNudge, London, UK
Electronic Engineering Intern, 04/2017-09/2017

Prototyped a wearable device by designing and testing miniature flexible printed circuit boards, implementing a custom testing platform for performance evaluation, and assessing image processing algorithms in C for device integration

National Heart & Lung Institute, London, UK
Research Intern, 07/2016-08/2016

Developed machine learning-based image recognition algorithms for automating the classification of cardiac magnetic resonance images, authored an abstract accepted at two international conferences, and received a Wellcome Trust Biomedical Vacation scholarship.

Education

Imperial College London, London, UK
PhD, 10/2018-12/2022

Research focussed on technologies for personalised healthcare. List of first-author publications:

- Cavallo FR, Toumazou C (2023) Personalised lifestyle recommendations for type 2 diabetes: Design and simulation of a recommender system on UK Biobank Data. PLOS Digit Health 2(8): e0000333
- Cavallo FR, Toumazou C, Nikolic K. Unsupervised Classification of Human Activity with Hidden Semi-Markov Models. Applied System Innovation. 2022; 5(4):83
- Cavallo FR, Mirza KB, de Mateo S, Miglietta L, Rodriguez-Manzano J, Nikolic K, Toumazou C. A Point-of-Care Device for Fully Automated, Fast and Sensitive Protein Quantification via qPCR. Biosensors. 2022; 12(7):537.
- Cavallo FR, Golden C, Pearson-Stuttard J, Falconer C, Toumazou C (2022) The association between sedentary behaviour, physical activity and type 2 diabetes markers: A systematic review of mixed analytic approaches. PLOS ONE 17(5): e0268289
- FR Cavallo, KB Mirza, S de Mateo, K Nikolic, J Rodriguez-Manzano, and C Toumazou. "Aptasensor for Quantification of Leptin Through PCR Amplification of Short DNA-Aptamers", ACS Sensors 2021 6 (3), 709-715
- FR Cavallo, KB Mirza, S. de Mateo, J. R. Manzano, K. Nikolic and C. Toumazou, "A Point-of-Care Device for Sensitive Protein Quantification," *2021 IEEE International Symposium on Circuits and Systems (ISCAS)*, 2021, pp. 1-5
- FR Cavallo, KB Mirza and C Toumazou, "Links Between DNA-Based Diet and Salivary Leptin Hormone Concentration," *2018 IEEE Biomedical Circuits and Systems Conference (BioCAS)*, 2018, pp. 1-4

Imperial College London, London, UK
MEng in Electrical and Electronic Engineering (First Class Honours), 10/2014-07/2018

Skills

Programming Python | R | SQL | Git
Data science methods Machine learning | Deep learning | Statistics | Causal modelling | Bias assessment and mitigation | Big data
Data science tools Microsoft Azure | Databricks | Spark | GitHub | MLOps | MLFlow
Medical domain knowledge Eletronic Health Records | Medical coding | NHS | Biobanks | Population health management | Medicine optimisation
Biology domain knowledge Real-time PCR and ELISA data analysis | Genetic data analysis | Compositional data analysis | Biosensors