Giovanni Visonà

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Current Position

Biomedical AI/ML Engineer *Heidelberg, Germany*
GSK.ai *2024 – Ongoing*

- Design and implementation of AI/ML-driven solutions along the entire model development lifecycle
- Research and development of state-of-the-art ML models to optimize performance on a range of biomedical prediction tasks.
- Liaising with experts in biology, medicine, and experimentation to ensure optimal collection of data to train biomedical ML models.
- Secure handling of sensitive data.

Experience

ESR Researcher in Machine Learning for Precision Medicine *Tübingen, Germany*
Max Planck Institute for Intelligent Systems *2019 – 2024*

- ESR in the Marie Curie Innovative Training Network entitled "Machine Learning Frontiers in Precision Medicine"
- Collaborated with international groups of experts from a variety of scientific domains, which led to the development of multidisciplinary skills.
- Designed and implemented deep-learning-based models and probabilistic models to solve problems in biology and biomedicine.
- Gained expertise with several types of biological data, including sequencing data, proteomics, mass spectra, clinical records, molecular networks, chemical structures.
- Published as first author or shared first author in internationally renowned journals, including Nature Communications, Bioinformatics, and Briefings in Bioinformatics.
- Gained mentoring experience, helping supervise Master students. Part of the MAXMINDS mentoring network to help disadvantaged students affected by the 2023 earthquake in Turkey and Syria.
- Supervised by Prof. Bernhard Schölkopf and Dr. Gabriele Schweikert for my doctoral studies.

Junior Developer and Consultant *Padova, Italy*
Espedia Consulting - Ethica Group *2016 – 2018*

- Contributed to the creation of customized software solutions for clients, prioritizing robustness in design, and ensuring on-time delivery.
- Applied object-oriented principles and design patterns to create scalable and maintainable code in Python and JavaScript.
- Developed presentations and proposals by synthesizing data and insights into actionable recommendations.

Education

University of Tübingen *2019 – 2024 (Awaiting PhD Defense)*
PhD in Computer Science

- Doctorate with a focus on biomedical applications of ML.
- Supervised by Prof. Bernhard Schölkopf and Dr. Gabriele Schweikert.
- Thesis: "Biomedical Machine Learning Beyond the Training Distribution".
- Currently waiting to defend my PhD thesis.

University of Edinburgh *2018 - 2019*
MSc in Artificial Intelligence

- Master of Science with a focus on machine learning and deep learning.
- Graduated with Distinction.

- Thesis: "Optimising Recommendation Slates Using Deep Determinantal Point Processes". Supervisors: Dr. Roberto Pellegrini and Aleksandr Petrov.

University of Trento *2014 – 2016*
Master's Degree in Physics

- Master's degree in experimental physics with a focus on medical physics.
- Graduated with 110/110 marks with honours.
- Thesis: "Polymer Templating of Porous Silicon for Drug Delivery Applications". Supervisor: Dr. Paolo Bettotti.

Università di Torino *2012 – 2014*
Bachelor's Degree in Physics

- Graduated with 110/110 marks with honours.
- Thesis: "Modelization of Nano Amplified Targeted Therapy (nATT)". Supervisor: Prof. Cristiana Peroni Collaborator: Dr. Andrea Attili.

Publications

Network propagation for GWAS analysis: a practical guide to leveraging molecular networks for disease gene discovery 2024
Visonà, G., Bouzigon, E., Demenais, F., Schweikert, G.
Briefings in Bioinformatics, 25(2), bbae014.

Multimodal learning in clinical proteomics: enhancing antimicrobial resistance prediction models with chemical information 2023
Visonà, G.*, Duroux, D.*, Miranda, L., Sükei, E., Li, Y., Borgwardt, K., Oliver, C.
Bioinformatics, 39(12), btad717.

A historical perspective of biomedical explainable AI research 2023
Malinverno, L., Barros, V., Ghisoni, F., ***Visonà, G.***, Kern, R., Nickel, P. J., ... Others
Patterns, 4(9).

Getting personal with epigenetics: towards individual-specific epigenomic imputation with machine learning 2023
Hawkins-Hooker, A.*, ***Visonà, G.****, Narendra, T., Rojas-Carulla, M., Schölkopf, B., Schweikert, G.
Nature Communications, 14(1), 4750.

Machine-Learning-Aided Prediction of Brain Metastases Development in Non–Small-Cell Lung Cancers 2023
Visonà, G., Spiller, L. M., Hahn, S., Hattingen, E., Vogl, T. J., Schweikert, G., ... Others
Clinical Lung Cancer, 24(8), e311–e322.

Targeted dose enhancement in radiotherapy for breast cancer using gold nanoparticles, part 2: a treatment planning study 2017
Strigari, L., Ferrero, V., ***Visonà, G.***, Dalmasso, F., Gobbato, A., Cerello, P., ... Attili, A.
Medical Physics, 44(5), 1993–2001.

Targeted dose enhancement in radiotherapy for breast cancer using gold nanoparticles, part 1: A radiobiological model study 2017
Ferrero, V., ***Visonà, G.***, Dalmasso, F., Gobbato, A., Cerello, P., Strigari, L., ... Attili, A.
Medical Physics, 44(5), 1983–1992.

Technologies

Languages: Python, R, Go, SQL

Technologies: Pytorch, Pandas, Polars, Ibis, SQLite, HDF5, Git, Github, Docker, Spark

Other: CI/CD (Azure, Github Actions), Cloud Computing (GCP)