

Alessio Staffini
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Phone Number: (+81)080-7058-1309

Date of birth: September 13, 1992

Birthplace: Lodi, Italy

Research Interests

Computational Economics, Machine Learning, Deep Learning

Education

- 2018 – 2022 **Catholic University of Milan** – Milan, Italy
Ph.D. in Economics (4 years)
Thesis title: “Essays on Complex Economic Systems and Artificial Intelligence”
- “Effects of skills gap in the labor market: an Agent-Based Modeling approach”
 - “A CNN-BiLSTM architecture for macroeconomic time series forecasting”
 - “Stock Price Forecasting by a Deep Convolutional Generative Adversarial Network”
- Supervisor: Domenico Delli Gatti
- 2017 – 2018 **Catholic University of Milan** – Milan, Italy
II level Master in Economics and Finance (1 year), *cum laude*
Thesis title: “Testing causality: the effects of immigration on unemployment and per capita GDP”
Supervisor: Luca Colombo
- 2014 – 2016 **Bocconi University** – Milan, Italy
M.Sc. in Economics and Management of Public Administration and International Institutions (CLAPI) (2 years), *110/110 cum laude*
Thesis title: “Jobless Growth: analysis of the Canary Islands (Spain)”
Supervisor: Nicola Fabbri
- 2011 – 2014 **Bocconi University** – Milan, Italy
B.Sc. in Economics and Social Sciences (CLES) (3 years)
Thesis title: “Sustainable Tourism. Analysis of Fuerteventura (Canary Islands, Spain)”
Supervisor: Valeria Belvedere

Additional Education

- September 2019 – November 2019 **Tokyo Institute of Technology (Tokyo Tech)** – Tokyo, Japan
December 2020 – February 2021
I attended two graduate courses from the Department of Mathematical and Computing Science: “Mathematical Optimization: Theory and Algorithms” (final grade: A+) and “Stochastic Differential Equations” (final grade: A+).
- October 2015 – March 2016 **Hitotsubashi University** – Tokyo, Japan (*Exchange Program*)
Exchange student at the Graduate School of International and Public Policy. I mainly took courses in economic history, globalization, and international political economy.
Average Evaluation: A
- July 2015 – August 2015 **Tsinghua University** – Beijing, China (*Campus Abroad Program*)
I attended one graduate course from the Department of Social and Political Sciences: “Comparative Business History: Competition and Globalization” (final grade: A).

Awards and Scholarships

November 2018 – December 2022
October 2015 – March 2016

Ph.D. Scholarship (Catholic University of Milan)
JASSO Scholarship (Hitotsubashi University)

Work Experience

April 2019 – *present*

ALBERT Inc. – Tokyo, Japan

July 2022 – *present*

AI Research Scientist at the Advanced Technology Department, where I am doing research on Reinforcement Learning and Vision-and-Language Navigation. My tasks mainly involve:

- Read, summarize, implement, and present research papers.
- Conduct research, produce publications, and present such results at national and international conferences.
- Monitor the results and provide support to the interns in the department.

April 2019 – June 2022

Data Scientist at the Data Solutions Division. I took part in several projects, primarily in the financial and healthcare sector. My tasks mainly involved:

- Data collection, data cleansing and data visualization.
- Identification of missing, invalid values and outliers, analysis and categorization of variables in big datasets.
- Pattern recognition and statistical modeling.
- Implementation of machine learning algorithms for classification and prediction.
- Results reporting and creation of supporting documentation for the client.
- Teach basic Python programming for data science to the new employees.

In particular:

- I set up a collaborative research project between The University of Tokyo and ALBERT Inc., which resulted in multiple publications in peer-reviewed international journals.
- I cooperated with the data science team of a Japanese multinational company to provide tailored solutions on a wide range of healthcare-related problems.
- I built a fast recommendation system for a big Japanese financial services group in order to provide daily suggestions on which stocks to buy to millions of users, according to their past activities. The proposed recommendation system improved the considered metrics (Precision and Recall) over the baseline models of more than 100%.

April 2016 – August 2016

European Commission – Luxembourg City, Luxembourg

Intern at the DG for Economic and Financial Affairs of the European Commission. My tasks mainly involved:

- Identify, extract, and collect relevant information from the documents.
- Provide statistics, produce charts and tables to support the Directorate-General in its research studies.

Research Experience

September 2020 – *present*

The University of Tokyo – Tokyo, Japan

Visiting Researcher in the Laboratory of Clinical Biotechnology (Graduate School of Medicine) and in the Laboratory of Precision Health (Department of Bioengineering, Graduate School of Engineering). I am mainly doing research in computational epidemiology and on AI applications in the healthcare sector.

Publications

1. Staffini A., Svensson T., Chung U.-I., Svensson A.K., “A Disentangled VAE-BiLSTM Model for Heart Rate Anomaly Detection”, *Bioengineering* 10(6):683, 2023.

2. Staffini A., Fujita K., Svensson A.K., Chung U.-I., Svensson T., "Statistical Methods for Item Reduction in a Representative Lifestyle Questionnaire: Pilot Questionnaire Study", *Interactive Journal of Medical Research* 11(1), 2022.
3. Staffini A., "Stock Price Forecasting by a Deep Convolutional Generative Adversarial Network", *Frontiers in Artificial Intelligence* 5:837596, 2022.
4. Staffini A., Svensson T., Chung U.-I., Svensson A.K., "Heart Rate Modeling and Prediction Using Autoregressive Models and Deep Learning", *Sensors* 22(1):34, 2022.
5. Staffini A., Svensson A.K., Chung U.-I., Svensson T., "An Agent-Based Model of the Local Spread of SARS-CoV-2: Modeling Study", *JMIR Medical Informatics* 9(4), 2021.

Service to the Profession

Referee for: *Journal of Medical Internet Research*, *JMIR Public Health and Surveillance*, *JMIR Medical Informatics*, *JMIR Bioinformatics and Biotechnology*, *JMIR Aging*, *JMIR Infodemiology*, *JMIRx Med*, *JMIR Formative Research*, *BMC Infectious Diseases*, *International Journal of Intelligent Computing and Cybernetics*, *Scientific Reports*, *Qeios*, *Behaviour and Information Technology*, *PeerJ Computer Science*

Language Skills

Italian: native

English: fluent (IELTS 7.5)

Spanish: good

Japanese: intermediate (JLPT N3, further courses at *ALA Japanese Language School* – Tokyo, Japan)

Finnish: basic

Computer Skills

Programming languages: Python, R, MATLAB, Netlogo, Java, C/C++

Database management: SQL, Spark, Hadoop

Software for statistical analysis: SPSS, gretl, STATA

Software for network analysis: Gephi, Pajek

Others: Microsoft Office (ECDL, European Computer Driving Licence), Unix, Git, Docker, CloudCompare, AutoCAD

Other Interests

Art, Music (playing bass guitar), Photography, Travelling, Reading.