

Curriculum Vitæ

Giorgia Minello

Personal data

Full name: Giorgia Minello
Position: Non-Tenured Assistant Professor
Place and date of birth: Treviso (TV), Italy, 19th July 1983
Permanent address: via Zermanese 42, 31100 Treviso (TV), Italy

Affiliation(s)

Department of Environmental Sciences,
Informatics and Statistics - DAIS
Università Ca' Foscari di Venezia

Tel: +39 340 10 95 634
E-mail: giorgia.minello@unive.it
Website: www.dais.unive.it/~minello

Biographical Sketch

I was born in Treviso, Italy, and spent seven years working in the timber industry before earning my bachelor's degree in Statistics and Information Systems for Business Management from Ca' Foscari University of Venice in 2009. I continued my studies at the same university, obtaining a master's degree (*summa cum laude*) in 2014 and a Ph.D. in Computer Science in 2019.

My research spans Structural Pattern Recognition, Machine Learning, Data and Network Science, Natural Language Processing, and Computer Vision, with a focus on network and structure analysis, classification model development, and text analysis.

In 2019, as a postdoctoral research fellow in Computer Science, I worked on developing alternative structural descriptors and anonymizing graphs. The following year, I joined the Department of Management as a postdoctoral researcher within a European project (2020–2021), where I began exploring text data to understand historical shifts in conceptual structures related to antisemitism. This work involved analyzing over 50,000 French books and 250,000 periodical issues using NLP tools and network analysis to study racism and religious bias in France from 1789 to 1919.

In April 2021, I collaborated with the Strategic Management Department at IESE Business School on a project examining information diffusion within social networks. Later that year, in October, I secured a postdoctoral position in the Department of Management at Ca' Foscari University, proposing a project to map sustainability management through a network-based approach.

Since December 2022, I have been a non-tenured assistant professor (Ricercatore “lettera a” - RTDa) in the Department of Environmental Sciences, Informatics, and Statistics at Ca' Foscari, contributing to the European iNEST project (Interconnected Nord-Est Innovation Ecosystem).

I also serve as a referee for international journals, including Pattern Recognition, Pattern Recognition Letters, and Journal of Complex Networks, as well as for international conferences, like NeurIPS and ICPR.

Education

Sept. 2015 - Mar. 2019

PhD in Computer Science

Università Ca' Foscari Venezia

Supervisor: Prof. Andrea Torsello

Thesis title: *Quantum Processes for Structural Analysis*¹

Topics: Non-Rigid Shape Analysis; Structural Pattern Recognition; Complex Networks; Quantum-inspired Methods for Graph Analysis

Dec. 2011 - Oct. 2014

Master's Degree in Computer Science (summa cum laude)

Università Ca' Foscari Venezia

Supervisor: Prof. Andrea Torsello

Thesis title: *Non-Parametric Spectral Graph Model*

Topics: Generative Models; Spectral Graph Theory; Classification; Kernel Density Estimation;

Oct. 2003 - Nov. 2009

Bachelor's Degree in Statistics and Information Systems for Business Management

Università Ca' Foscari Venezia

Supervisor: Prof. Giovanni Favero

Thesis title: *Prezzo del petrolio e Picco di Hubbert*

Topics: Business History; Statistical Modeling

Sept. 1997 - Jul. 2002

High School diploma (100/100)

Istituto Magistrale Duca degli Abruzzi – Treviso

Liceo Socio-Psico-Pedagogico

Summer School

Jul. 2016

International Summer School on Complex Networks - ISSCN

University Residential Center Bertinoro, Forlì-Cesena (Italy)

Organizer: Prof. Andrea Torsello

Topics: Overview of both the foundations and state of the art in the Complex Networks field.

Academic Experience

December 2022 - now

Non-Tenured Assistant Professor (RTDA) – SSD ING-INF/05 (Computer Science)

Università Ca' Foscari Venezia

Supervisor: Prof. Claudio Lucchese

Title: *iNEST: Interconnected Nord-Est Innovation Ecosystem*

Topics: Machine Learning and Interpretability

July 2022 - November 2022

Post-Doc Position (Computer Science)

Università Ca' Foscari Venezia

Supervisor: Prof. Massimo Warglien

¹URL: <http://www.dais.unive.it/~minello/publication.html>

Title: *Inclusive Science and European Democracies — ISEED: Argument Extractor for online debates*

Topics: Natural Language Processing; Machine Learning; Network Science

Oct. 2021 - June 2022

Post-Doc Position (*Computer Science*)

Università Ca' Foscari Venezia

Supervisor: Prof. Massimo Warglien

Title: *Mapping Sustainability Management: A Network-Based Approach To Text Analysis*

Topics: Natural Language Processing; Machine Learning; Network Science

Apr. 2021 - Apr. 2022

Scientific Collaborator (*Computer Science*)

IESE Business School - University of Navarra (Barcelona)

Supervisor: Prof. Massimo Maoret

Title: *Information Diffusion within Social Network*

Topics: Natural Language Processing; Machine Learning; Network Science

Apr. 2021 - Jun. 2021

Scientific Collaborator (*Computer Science*)

Università Ca' Foscari Venezia

Supervisor: Prof. Massimo Warglien

Title: *Odyceus Project (Horizon 2020): Python tools*

Topics: Natural Language Processing; Machine Learning; Network Science

Feb. 2020 - Jan. 2021

Post-Doc Position (*Computer Science*)

Università Ca' Foscari Venezia

Supervisor: Prof. Massimo Warglien

Title: *Odyceus Project (Horizon 2020): Applications of Natural Language Processing to historical analysis: the case of antisemitism in France 1789-1919*

Topics: Natural Language Processing; Machine Learning; Network Science

Feb. 2019 - Jan. 2020

Post-Doc Position (*Computer Science*)

Università Ca' Foscari Venezia

Supervisor: Prof. Andrea Torsello

Title: *Extract pictorial iconography via deep networks*

Topics: Computer Vision; Machine Learning; Deep Learning

Oct. 2018 - Jan. 2019

Research Fellow

Università Ca' Foscari Venezia

Supervisor: Prof. Andrea Albarelli

Title: *Scientific advisory for the research topic Techniques of Machine Learning for predictive analysis of malfunctions and scheduled maintenance*

Topics: Data Analysis; Machine Learning

Feb. 2015 - Aug. 2015

Research Fellow

Università Ca' Foscari Venezia and AgID (Agenzia per l'Italia Digitale)

Supervisor: Prof. Agostino Cortesi

Title: *Progettazione ed Implementazione di un sistema di organizzazione e interrogazione delle basi di dati delle pubbliche amministrazioni.*

Topics: Data Analysis; Database Design

Visiting Positions

Oct. 2024

Visiting Researcher

The Hong Kong Polytechnic University (PolyU)

Invited by Dr. Luca Rossi

Topics: Interpretable GNN With Local Structure Embedding.

Oct. 2019 - Nov. 2019

Visiting Researcher

Southern University of Science and Technology - SUSTech, Shenzhen (China)

Supervisor: Dr. Luca Rossi

Topics: Graph anonymization and graph convolutional networks.

Feb. 2018 - Mar. 2018

Visiting PhD Student

School of Engineering and Applied Science Aston University, Birmingham (UK)

Supervisor: Dr. Luca Rossi

Topics: Structural analysis via quantum entropy.

May 2017 - Jul. 2017

Visiting PhD Student

Computer Science Department of York University (UK)

Supervisor: Prof. Edwin R. Hancock

Topics: Quantum-information approaches for graph analysis, graph-based pattern recognition and complex networks analysis.

Student Supervision

- Supervision of master thesis by Niloofar Dehghani *Leveraging Graph Neural Networks for Advanced Fraud Detection* (Ca' Foscari University) – 04/2024 - now
- Co-supervision of master thesis by Alberto Collodet *Detection of Protohistorical Tumuli in Friuli-Venezia Giulia with Mask R-cnn and U-net* (Ca' Foscari University) – 05/2024 - now
- Co-supervision of master thesis by Federico Dassiè *Machine Learning and Computer Vision in the Humanities* (Ca' Foscari University) – 06/2022 - 11/2022

Teaching

Upper-Division Courses - Master's Degree

- *Data Science and Business Intelligence*, Università Ca' Foscari Venezia (2024)
- *Data Science and Business Intelligence*, Università Ca' Foscari Venezia (2023)
- *Network Analysis*, Università Ca' Foscari Venezia (2022)

Lower-Division Courses - Bachelor's Degree

- *Linear Algebra*, Università Ca' Foscari Venezia (2022)
- *Mathematics for Decision Sciences 1-2*, Università Ca' Foscari Venezia (2022)
- *Mathematics for Decision Sciences 1-2 – practice*, Università Ca' Foscari Venezia (2022)
- *Introductory Course to Mathematics for Decision Sciences*, Università Ca' Foscari Venezia H-Farm (2022)
- *Mathematics for Decision Sciences 1-2 – practice*, Università Ca' Foscari Venezia (2021)

Teaching Assistant

- Upper-Division Courses
 - *Mathematical Models For Decision Making*, Università Ca' Foscari Venezia (2018)
- Lower-Division Courses
 - *Linear Algebra*, Università Ca' Foscari Venezia (2016, 2017, 2018)
 - *Mathematics*, Università Ca' Foscari Venezia (2016, 2017, 2018)
 - *Discrete Mathematics*, Università Ca' Foscari Venezia (2014, 2015)
 - *Mathematics For Economics And Finance*, Università Ca' Foscari Venezia (2016)

Grants and scholarships

- Ph.D. Scholarship from the Italian Ministry of Education (2015-2018)

Seminars

- *Can Graph Neural Networks Become More Interpretable?*, Hong Kong Polytechnic University, October 2024.
- *LESI-GNN: an Interpretable Graph Neural Network-based on Local Structures Embedding*, S+SSPR24 - Ca' Dolfin, September 2024.
- *When Natural Language Processing meets Networks*, IESE Business School - University of Navarra, October 2022.
- *Machine Learning: Supervised Learning vs Unsupervised Learning*, Ca' Foscari University of Venice, January 2022.
- *Natural Language Processing 101 not just for beginners*, Ca' Foscari University of Venice, March 2021.
- *Quantum Processes for Structural Analysis*, Royal Holloway, University of London (Egham), UK, September 2019.
- *Quantum Thermodynamics of Time Evolving Networks*, University of York, UK, July 2017.
- (educational) *INFORMATICA SARÀ LEI*, Istituto Max Planck, Treviso, IT, 2015

Professional Service

- *Chair* @ Joint IAPR International Workshops on Statistical Techniques in Pattern Recognition and Structural and Syntactic Pattern Recognition S+SSPR, 9-10 September 2024, Venice, Italy
- *Staff* @ The 22nd IEEE/WIC International Conference on Web Intelligence and Intelligent Agent Technology WI = Artificial Intelligence in the Connected World (Hybrid Conference) October 26-29, 2023, Venice, Italy

Additional Information

Languages

- English: upper-intermediate/advanced
- Italian: native speaker

Other Skills

- Python (Deep Learning Frameworks: Keras, PyTorch, TensorFlow), Matlab, R, DBMS
- Driving Licence

Publications

International Journals

- [J.10] L. Cosmo, G. Minello, A. Bicciato, M. M. Bronstein, E. Rodolà, L. Rossi, and A. Torsello. Graph kernel neural networks. *IEEE Transactions on Neural Networks and Learning Systems*, pages 1–14, 2024
- [J.9] G. Minello, C. R. M. A. Santagiustina, and M. Warglien. Lda2net digging under the surface of covid-19 scientific literature topics via a network-based approach. *Plos one*, 19(4):e0300194, 2024
- [J.8] A. Bicciato, L. Cosmo, G. Minello, L. Rossi, and A. Torsello. Gnn-lofi: A novel graph neural network through localized feature-based histogram intersection. *Pattern Recognition*, page 110210, 2023
- [J.7] G. Minello and D. Paci. A benchmark corpus for topic modeling on the origins of modern antisemitism. *Umanistica Digitale*, (13):117–151, 2022
- [J.6] L. Cosmo, G. Minello, M. Bronstein, E. Rodolà, L. Rossi, and A. Torsello. 3D Shape Analysis Through a Quantum Lens: the Average Mixing Kernel Signature. *International Journal of Computer Vision*, 2022
- [J.5] S. Levis Sullam, G. Minello, R. Tripodi, and M. Warglien. Representation of Jews and Anti-Jewish Bias in 19th Century French Public Discourse: Distant and Close Reading. *Frontiers in Big Data*, 4, 2022
- [J.4] G. Minello, L. Rossi, and A. Torsello. k-Anonymity on Graphs using the Szemerédi Regularity Lemma. *IEEE Transactions on Network Science and Engineering*, 2020

- [J.3] G. Minello, A. Torsello, and E. R. Hancock. Open System Quantum Thermodynamics of Time Varying Graphs. *Journal of Complex Networks*, 8(1):cnaa004, 2020
- [J.2] G. Minello, L. Rossi, and A. Torsello. Can a Quantum Walk Tell Which Is Which? A Study of Quantum Walk-Based Graph Similarity. *Entropy*, 21(3):328, 2019
- [J.1] G. Minello, L. Rossi, and A. Torsello. On the von Neumann Entropy of Graphs. *Journal of Complex Networks*, 7(4):491–514, 11 2018

Refereed Conference Papers and Preprints

- [C.10] L. Zhang, L. Cosmo, G. Minello, A. Torsello, and L. Rossi. Graftix: Graph transformer with fixed attention. In *27th International Conference on Pattern Recognition - ICPR 2024*, 2024
- [C.9] C. Lucchese, G. Minello, F. M. Nardini, S. Orlando, R. Perego, and A. Veneri. Can embeddings analysis explain large language model ranking? In *Proceedings of the 32nd ACM International Conference on Information and Knowledge Management, CIKM '23*, page 4150–4154, New York, NY, USA, 2023. Association for Computing Machinery
- [C.8] A. Biciato, L. Cosmo, G. Minello, L. Rossi, and A. Torsello. Classifying me softly: A novel graph neural network based on features soft-alignment. In *Joint IAPR International Workshops on Statistical Techniques in Pattern Recognition (SPR) and Structural and Syntactic Pattern Recognition (SSPR)*, pages 43–53. Springer, 2022
- [C.7] G. Minello, L. Cosmo, M. Bronstein, L. Rossi, and A. Torsello. The Average Mixing Kernel Signature. In *Computer Vision – ECCV 2020*, pages 1–17. Springer International Publishing, 2020
- [C.6] E. Rodolà, L. Cosmo, O. Litany, M. M. Bronstein, A. M. Bronstein, N. Audebert, A. B. Hamza, A. Boulch, U. Castellani, M. N. Do, et al. Shrec'17: Deformable shape retrieval with missing parts. In *10th Eurographics Workshop on 3D Object Retrieval, 3DOR 2017*, pages 85–94. Eurographics Association, 2017
- [C.5] G. Minello, A. Torsello, and E. R. Hancock. Quantum Thermodynamics of Time Evolving Networks. In *Pattern Recognition (ICPR), 2016 23rd International Conference on*, pages 1536–1541. IEEE, 2016
- [C.4] G. Minello, A. Torsello, and E. R. Hancock. Thermodynamic Characterization of Temporal Networks. In *Joint IAPR International Workshops on Statistical Techniques in Pattern Recognition (SPR) and Structural and Syntactic Pattern Recognition (SSPR)*, pages 49–59. Springer, 2016
- [C.3] J. Lockhart, G. Minello, L. Rossi, S. Severini, and A. Torsello. Edge Centrality via the Holevo quantity. In *Joint IAPR International Workshops on Statistical Techniques in Pattern Recognition (SPR) and Structural and Syntactic Pattern Recognition (SSPR)*, pages 143–152. Springer, 2016

- [C.2] A. Gasparetto, G. Minello, and A. Torsello. Non-Parametric Spectral Model for Shape retrieval. In *3D Vision (3DV), 2015 International Conference on*, pages 344–352. IEEE, 2015
- [C.1] A. Gasparetto, G. Minello, and A. Torsello. A Non-Parametric Spectral Model for Graph classification. In *ICPRAM (1)*, pages 312–319, 2015
- [P.1] G. Minello, A. Bicciato, L. Rossi, A. Torsello, and L. Cosmo. Graph generation via spectral diffusion. *arXiv preprint arXiv:2402.18974*, 2024

(Notices in Italian language required by law)

La sottoscritta dichiara che quanto sopra dichiarato corrisponde a verità ai sensi degli artt. 46 e 47 del D.P.R. n. 445/2000 e consapevole delle sanzioni penali, nel caso di dichiarazioni non veritiere, di formazione o uso di atti falsi, richiamate dall'art. 76 del D.P.R. 445 del 28 dicembre 2000.

Autorizzo il trattamento dei dati personali contenuti nel mio curriculum vitae in base art. 13 del D. Lgs. 196/2003

Data di oggi: 19 dicembre 2024

Firma (Giorgia Minello)

A handwritten signature in black ink, appearing to read 'Giorgia Minello', is written over a light blue rectangular background.