

SOFIA FELLINI

PLACE OF BIRTH: Bussolengo (VR), Italy

DATE OF BIRTH: March 04, 1991

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AFFILIATION: *Department of Environmental, Land, and Infrastructure Engineering, Politecnico di Torino, 10129 Torino, Italy.*

PERSONAL PAGES: [ORCID](#), [ResearchGate](#), [LinkedIn](#), [LMFA](#), [Google Scholar](#).

RESEARCH ACTIVITY

- From MAY 2023 to [present](#) Researcher (RTDA), **Politecnico di Torino, DIATI**, Turin.
- From SEPT. 2022 to APRIL 2023 Researcher and Teaching Assistant (ATER) in Fluid Mechanics and Climate Change, **Ecole Centrale de Lyon**, Lyon.
- JUNE 2021 to present Postdoctoral Researcher, **Laboratoire de Mécanique des Fluides et d'Acoustique** (France).
Project: "ALBUS: Atmospheric Lattice Boltzmann Urban Simulations".
Supervisors: Prof. Pietro Salizzoni and Prof. Lionel Soulhac.
- NOVEMBER 2020 to JUNE 2021 Research Fellow, **Politecnico di Torino** (Italy).
Project: "Application of complex network theory for modeling atmospheric dispersion in urban areas".
Supervisor: Prof. Luca Ridolfi.
- DECEMBER 2015 to OCTOBER 2017 Research Assistant, **Politecnico di Torino** and **SMAT**, Turin (Italy).
Subject: Analysis, study and modeling of the hydraulic behavior of a new water supply system in the Susa Valley (Turin).
Supervisors: Prof. Luca Ridolfi and Prof. Fulvio Boano.

EDUCATION

- NOVEMBER 2017 to MARS 2021 PhD in Civil and Environmental Engineering, PhD in Fluid Mechanics. Joint program between **Politecnico di Torino** (Italy) and **École Centrale de Lyon** (France). Final Grade: Cum Laude. Thesis: "Modeling pollutant dispersion at the city and street scales: from wind tunnel experiments to complex network theory."
Supervisors: Prof. Pietro Salizzoni and Prof. Luca Ridolfi.
- OCTOBER 2013 to OCTOBER 2015 Master Degree in Environmental and Land Engineering, **Politecnico di Torino**, Turin (Italy). Final Grade: 110/110 cum laude. Thesis: "Equilibrium cross-section of rivers with riparian vegetation".
Advisor: Prof. Gianluca Botter.
- OCTOBER 2010 to SEPTEMBER 2013 Bachelor Degree in Environmental and Land Engineering, **Università degli Studi di Padova**, Padova (Italy). Final Grade: 110/110. Thesis: "Hydro-climatic fluctuations and water resources management in the Nacimiento River watershed."
Advisor: Prof. Gianluca Botter.

LANGUAGES

ITALIAN: Mothertongue

ENGLISH: Full professional proficiency (Level B2) | **FCE (2010)**

FRENCH: Full professional proficiency (Level B2) | **DELF B2 (2010)**

GERMAN: Professional working proficiency (Level B1) | **Goethe-Zertifikat B1 (2009)**

TEACHING EXPERIENCE

- 2022 - 2023 Teaching Assistant for the master courses "Climate Change" (40 hours of Tutorials), "Urban Climatology" (10 hours of Lectures and 4 hours of Tutorials), "Fluid Mechanics" (40 hours of Tutorials and 24 hours of Laboratory), and "Fluides et Energie" (28 hours of Tutorials). **École centrale de Lyon, Lyon.**
- 2022 - 2023 Teaching Assistant for the master's course "Urban Climatology" (8 hours of Lectures and 3 hours of Tutorials). **École centrale de Lyon, Lyon.**
- 2021-2022 Teaching Assistant for the course *Climate Change* (12 hours), **Ecole Centrale de Lyon (France).**
- 2020-2021 Teaching Assistant for the course *Green water for sustainable building* (16 hours) for the master program in Building Engineering, **Politecnico di Torino (Italy).**
- 2018 -2020 Teaching Assistant for the course *Technical hydraulics* (27 hours in 2019, 33 hours in 2020) for the master program in Building Engineering, **Politecnico di Torino (Italy).**

INVITED SPEAKER

- 24 MARCH 2021, Seminar entitled *Modelling pollutant dispersion at the city and street scales*, Imperial College, UK. Invitation from Professor Maarten van Reeuwijk.
- 22 JUNE 2020, *Master course in Meteorology and Physical Oceanography*, Lecce, Italy. Invitation from Professor Riccardo Buccolieri.

CONFERENCES AND SCHOOLS

- 29-31 AUGUST 2022 *PHYSMOD 2022*, Praga, Repubblica Ceca (**oral presentation**).
- 23-27 MAY 2022 *EGU General Assembly 2022*, Vienna, Austria (**oral presentation**).
- 3-5 NOVEMBER 2021, *European Colloquium on Theoretical and Quantitative Geography 2021*, Manchester, UK & Online Everywhere (**oral presentation**).
- 13-17 DECEMBER 2020, *AGU Fall Meeting 2020*, New Orleans, LA & Online Everywhere (**oral presentation**).
- 4-8 MAY 2020, *EGU General Assembly 2020*, Wien, Austria (**online presentation**).
- 17-19 DECEMBER 2020, **Winter School: Data and model integration in fluid mechanics**, Imperial College London, UK (*attendee*).
- 1-14 JULY 2019, **Summer School: Fluid Dynamics of Sustainability and the Environment**, Ecole Polytechnique de Paris, France (**poster presentation**).
- 20-25 JANUARY 2019, *Environmental Fluid Dynamics: Confronting Grand Challenges*, Les Houches, France (**oral presentation**).
- 1-6 JULY 2018, *HIC 2018. 13th International Conference on Hydroinformatics*, Palermo, Italy (**oral presentation**).
- 20-22 JUNE 2018, *Phd Days of the Hydraulic Italian Group (GII)*, Catania, Italy (**oral presentation**).
- 29 NOV.-1 DEC. 2017, *Complex networks & Their Applications*, Lyon, France (*attendee*).
- 19 OCTOBER 2016, *Water networks: modelling, management and innovation*, Bologna, Italy (*attendee*).
- 5-6 MAY 2016, *First Symposium: Water as a global resource*, Turin, Italy (*attendee*).

OTHER RESPONSIBILITIES

- 2017-present Co-supervisor of master students from **Politecnico di Torino**, **Imperial College**, **Politecnico di Milano** and **Ensta-Institut Polytechnique de Paris**. Final projects about *numerical simulations on network theory and pollutant dispersion and wind tunnel experiments*.
- 2019-present Peer reviewing activity for various scientific journals: *Building and Environment*, *Environmental Science & Technology*, *Urban Climate*, *Boundary-Layer Meteorology*, *Geo-Spatial Information Science*.
- September 2019 Mentor for the winning team of the *Hackaton Smart Tower Terna* with the project *Grape Up*, a wind monitoring system to prevent damage to vineyards using sensors installed along the high-voltage grid **Politecnico di Torino** (Italy).

CERTIFICATES, SCHOLARSHIPS AND AWARDS

- MARCH 2022 First prize for the doctoral award of the Piedmont Region in memory of Ing. Stefano Rigatelli for the best thesis in Environmental Engineering, Turin (Italy).
- FEBRUARY 2022 Qualification for the position of Maître de Conférences in Section 60 (Mechanics, Mechanical Engineering, Civil Engineering).
- DECEMBER 2021 Doctoral award: best PhD candidate of the 33rd cycle in Civil and Environmental Engineering at Politecnico di Torino, Turin (Italy).
- 2020 Research financial support for a doctoral international mobility of three months in Lyon, French Government.
- 2017-2019 IDEXLYON financial support for a doctoral international mobility of ten months in Lyon, Université de Lyon, Lyon (France).
- JULY 2018 The HIC 2018 best student paper award for Hydraulic and hydrological modelling, HIC 2018, Palermo (Italy).
- JULY 2017 PhD scholarship for a 3-year joint PhD program, Politecnico di Torino & École Centrale de Lyon.
- FEBRUARY 2017 Qualification for the Practice of Professional Engineering, Turin (Italy).
- DECEMBER 2015 Fellowship for a 2-year Research Activity, Politecnico di Torino & SMAT, Turin (Italy).

PUBLICATIONS

Articles

Zhao, Yongling ; Chew, Lup Wai ; Fan, Yifan ; Gromke, Christof ; Hang, Jian ; Yu, Yichen ; Ricci, Alessio ; Zhang, Yan ; Xue, Yunpeng ; **Fellini, Sofia** and others, (2023) *Fluid tunnel research for challenges of urban climate*, URBAN CLIMATE, Elsevier, DOI: 10.1016/j.uclim.2023.101659. [Link to Full Text](#).

Soulhac, Lionel; **Fellini, Sofia**; Nguyen, Chi Vuong; Salizzoni, Pietro, (2023) *Evaluation of Photostationary and Non-Photostationary Operational Models for NOX Pollution in a Street Canyon*, ATMOSPHERIC ENVIRONMENT, Elsevier, DOI: 10.1016/j.atmosenv.2023.119589. [Link to Full Text](#).

Li, Tianyang; **Fellini, Sofia**; van Reeuwijk, Maarten, (2023) *Urban air quality: What is the optimal place to reduce transport emissions?*, ATMOSPHERIC ENVIRONMENT, Elsevier, DOI: 10.1016/j.atmosenv.2022.119432. [Link to Full Text](#).

Fellini, Sofia; Marro, Massimo; Del Ponte, Annika Vittoria; Barulli, Marilina; Soulhac, Lionel; Ridolfi, Luca; Salizzoni, Pietro, (2022) *High resolution wind-tunnel investigation about the effect of street trees on pollutant concentration and street canyon ventilation*, BUILDING AND ENVIRONMENT, Elsevier, DOI: 10.1016/j.buildenv.2022.109763. [Link to Full Text](#).

Fellini, Sofia; Salizzoni, Pietro; Ridolfi, Luca, (2021) *Vulnerability of cities to toxic releases is written in their topology*, SCIENTIFIC REPORTS, accepted on 9th November 2021.

Fellini, Sofia; Salizzoni, Pietro; Ridolfi, Luca, (2020) *Centrality metric for the vulnerability of urban networks to toxic releases*, PHYSICAL REVIEW E, APS, DOI: 10.1103/PhysRevE.101.032312. [Link to Full Text](#).

Fellini, Sofia; Salizzoni, Pietro; Ridolfi, Luca, (2020) *Street canyon ventilation: Combined effect of cross-section geometry and wall heating*, QUARTERLY JOURNAL OF THE ROYAL METEOROLOGICAL SOCIETY, Wiley, DOI: 10.1002/qj.3795. [Link to Full Text](#).

Fellini, Sofia; Vesipa, Riccardo; Boano, Fulvio; Ridolfi, Luca, (2020) *Fault detection in level and flow rate sensors for safe and performant remote-control in a water supply system*, JOURNAL OF HYDROINFORMATICS, IWA, DOI: 10.2166/hydro.2019.002. [Link to Full Text](#).

Vesipa, Riccardo; **Fellini, Sofia**, (2019) *Instability of the tank-level control system of water mains in mountainous environments*, JOURNAL OF HYDRAULIC ENGINEERING, ASCE, DOI:10.1061/(ASCE)HY.1943-7900.0001609. [Link to Full Text](#).

Fellini, Sofia; Salizzoni, Pietro; Soulhac, Lionel; Ridolfi, Luca, (2019) *Propagation of toxic substances in the urban atmosphere: A complex network perspective*, ATMOSPHERIC ENVIRONMENT, Elsevier, ISSN: 1352-2310, DOI: 10.1016/j.atmosenv.2018.10.062. [Link to Full Text](#).

Fellini, Sofia; Vesipa, Riccardo; Boano, Fulvio; Ridolfi, Luca, (2017) *Multipurpose Design of the Flow-Control System of a Steep Water Main*, JOURNAL OF WATER RESOURCES PLANNING AND MANAGEMENT, ASCE, DOI: 10.1061/(ASCE)WR.1943-5452.0000867. [Link to Full Text](#).

Proceedings

Fellini, Sofia; Annika Vittoria Del Ponte; Marilina Barulli; Ridolfi, Luca; Lionel Soulhac; Massimo Marro; Salizzoni, Pietro, (2022) *Turbulent transfer and concentration statistics in a street canyon with tree planting*, EGU General Assembly Conference Abstracts. EGU, EGU General Assembly 2022, DOI: 10.5194/egusphere-egu22-12683 . [Link to Full Text](#).

Fellini, Sofia; Marro, Massimo; Ridolfi, Luca; Salizzoni, Pietro, (2020) *Vertical turbulent transport in an urban street canyon*, AGU Fall Meeting Abstracts. AGU, 2020. p. NG008-0023. [Link to Full Text](#).

Fellini, Sofia; Ridolfi, Luca; Salizzoni, Pietro, (2020) *Effect of wall heating on street canyon ventilation*, EGU General Assembly Conference Abstracts. EGU, EGU General Assembly 2020, pp. 1, 2020, DOI: 10.5194/egusphere-egu2020-9613. [Link to Full Text](#).

Fellini, Sofia; De Giovanni, Alessandro; Marro, Massimo; Ridolfi, Luca; Salizzoni, Pietro, (2020) *Effect of trees on street canyon ventilation*, EGU General Assembly Conference Abstracts. EGU, EGU General Assembly 2020, pp. 1, 2020, DOI: 10.5194/egusphere-egu2020-10661. [Link to Full Text](#).

Fellini, Sofia, Vesipa, Riccardo; Boano, Fulvio; Ridolfi, Luca, (2018) *REAL-TIME MEASUREMENT FAULT DETECTION AND REMOTE CONTROL IN A MOUNTAIN WATER SUPPLY SYSTEM*, XXXVI Convegno Nazionale di idraulica e Costruzioni Idrauliche, Advanced srl - comitato editoriale IDRA2018, XXXVI Convegno Nazionale di idraulica e Costruzioni Idrauliche, Ancona (Italia) 12-14 Settembre 2018, pp. 4, 2018, ISBN: 9788894379907.

Vesipa, Riccardo; **Fellini, Sofia**, (2018) *FLOW OSCILLATIONS IN A STEEP WATER MAIN*, XXXVI Convegno Nazionale di idraulica e Costruzioni Idrauliche, Advanced srl - comitato editoriale IDRA2018, XXXVI Convegno Nazionale di idraulica e Costruzioni Idrauliche, Ancona (Italia) 12-14 Settembre 2018, pp. 4, 2018, ISBN: 9788894379907.

Fellini, Sofia; Vesipa, Riccardo; Boano, Fulvio; Ridolfi, Luca, (2018) *Real-Time Measurement Fault Detection and Remote-Control in a Mountain Water Supply System*, EPIC SERIES IN ENGINEERING, In: EPiC Series in Engineering, EasyChair, HIC 2018. 13th International Conference on Hydroinformatics, Palermo (ITALY), DOI: 10.29007/7k9l. [Link to Full Text](#).

August 30, 2023

Sofia Fellini

A handwritten signature in blue ink, reading "Sofia Fellini". The signature is written in a cursive style with a large initial 'S' and 'F'.