

Francesco Ambrogi - Curriculum Vitae

Education

2019-present **Queen's University** Ph.D. Mechanical Engineering

Thesis title: *Characterization of unsteady flow separation in a turbulent boundary layer via Large-Eddy Simulation.*

2016-2019 **University of Bologna** M.S. Energy and Nuclear Engineering

Thesis title: *Tritium Transport and In-Core Absorption in the Fluoride-salt-cooled High-temperature Reactor (FHR).*

2012-2015 **University of Modena** B.S. Mechanical Engineering

Thesis title: *Identification, analysis and experimental validation of predictive models to calculate injection molding machine's energy consumption.*

Published Journal Articles

1. Ambrogi F., Piomelli U., and Rival D. E. "**Characterization of unsteady separation in a turbulent boundary layer: mean and phase-averaged flow.**" Journal of Fluid Mechanics 945 (2022): A10.
2. Ambrogi F., Piomelli U., and Rival D. E. "**Characterization of unsteady separation in a turbulent boundary layer: Reynolds stresses and flow dynamics.**" Journal of Fluid Mechanics 972 (2023): A36
3. MacDougall C. Y., Piomelli U., and Ambrogi F. "**Evaluation of turbulence models in unsteady separation.**" Fluids 8(10) (2023).

Conferences and other publications

- Ambrogi F., Piomelli U., and Rival D. E. **Influence of time-varying freestream conditions on unsteady separation in a turbulent boundary layer** 76th American Physical Society (APS) Division of Fluid Dynamics, Washington DC - 2023
- Ambrogi F., Piomelli U., and Rival D. E. **Advection dynamics of a turbulent separation bubble** The 14th International ERCOFTAC

Symposium on Engineering Turbulence Modelling and Measurements,
Barcelona (Spain) - 2023

- Ambrogi F., Piomelli U., and Rival D. E. **Frequency dependence of unsteady separation in a turbulent boundary layer** 75th American Physical Society (APS) Division of Fluid Dynamics, Indianapolis (Indiana) - 2022.
- MacDougall C.Y., Piomelli U., and Ambrogi F. **Performance of Reynolds Averaged Navier Stokes Models for Unsteady Separated flows** 75th American Physical Society (APS) Division of Fluid Dynamics, Indianapolis (Indiana) - 2022.
- Ambrogi F., Piomelli U., and Rival D. E. **Large-Eddy simulation of a turbulent boundary layer with unsteady pressure gradients** Twelfth International Symposium on Turbulence and Shear Flow Phenomena (TSFP12), Osaka - 2022.
- Ambrogi F., Piomelli U., and Rival D. E. **Dynamics of turbulent kinetic energy advection in a turbulent boundary layer under unsteady pressure gradients** 13th Direct and Large Eddy Simulation, Undine, (Italy) - 2022.
- Ambrogi F., Hantsis Z., Rival D. E., and Piomelli U. **Large-Eddy simulation of a boundary layer with unsteady pressure gradient** 74th American Physical Society (APS) Division of Fluid Dynamics, Phoenix (AZ) - 2021.

Teaching Experience

2023-present **Royal Military College of Canada** Sessional Instructor

- MEE 311 (Fluid Mechanics I): primary instructor and course developer
- MEE315 (Fluid Dynamics): primary instructor and course developer

2022-present **Queen's University** Teaching Fellow

- MECH 241 (Fluid Mechanics I): primary instructor and course developer

2019-present **Queen's University** Teaching Assistant

- MECH 241 (Fluid Mechanics I): lead teaching assistant (fall and winter term)
- MECH 341 (Fluid Mechanics II): lead teaching assistant and assistant instructor
- MECH 398 (Mechanical Engineering Lab): lead teaching assistant (air-flow in pipes module)

2020-present **Queen's University** Lead teaching assistant

- Interdisciplinary engineering for sustainability and innovation. This is a winter term 4 credit course in which I acted as a lead teaching assistant to a cohort composed of 5 fellow teaching assistants, and 25 students.
- How to Change the World booth camp. This is a one-week long workshop organized across the world, in which I acted as lead teaching assistant.

Honors and awards

2022-2023 **Queen's University** Silver Wrench Award

2022-2023 **Rotary International** Rotaract Leadership Award

2021-2022 **Queen's University** Bronze Wrench Award

2021-2022 **Queen's University** Dean's Teaching Assistant (DTA) Award

Supervision

2022-2023 **Queen's University** Claire MacDougall (M.S. student)

2022-2023 **Queen's University** Michael Kelly (B.S. student)

Volunteering and Association

1. 2023-2024 **Rotary International** Assistant Governor Rotaract

This is my first district leadership position. I have been selected by the Governor-Elect (23-24) as the Assistant Governor Rotaract for the district 7040 (Ontario and upstate New York). My goal is to oversee and help all Rotaract Clubs in our Area.

2. 2022-2023 **Rotaract Club of Kingston** Club Treasurer & Past President

Rotaract International is a non-for-profit organization partner of Rotary International. The main goal is to gather together highly motivated young and early career professionals and help the local community thrive while improving leadership skills.

Contact

Email: f.ambrogi@queensu.ca

Phone: +1 (613) 5833513

Office: McLaughlin Hall, Room 405, Kingston ON, Canada