

Alessandro Ceci

Curriculum Vitae et Studiorum

Research Experience

- January/2024 - **Postdoctoral Research Fellow:** Fluid Dynamics, Sapienza University of Rome
Present Research in high-speed compressible turbulent flows.
- May/2023 - Research activity at University of Cambridge within project Horizon
June/2023 2020, MSCA ETN TEAMAero.
- April/2022 - Research activity at Aix-Marseille University within project Horizon
May/2022 2020, MSCA ETN TEAMAero.
- January/2021 - **Ph.D. Research Fellow:** Fluid Dynamics, Sapienza University of
December/2023 Rome.
PhD student within project Horizon 2020, MSCA ETN TEAMAero, ESR 13. Development of high fidelity numerical tools for shock wave/boundary layer interactions.

Professional Experience

- August/2018- **Aerodynamicist:** Aerodynamics Department, Scuderia Alfa Romeo
December/2020 Sauber, Hinwil, Switzerland, 2018–2020
- September/2017- **CFD Methodology Engineer:** Aerodynamics Department, Scuderia
August/2018 Toro Rosso, Faenza, Italy, 2017–2018

Education

- January/2024 **Ph.D.** Sapienza University of Rome, Department of Mechanics and
Aerospace Engineering, 2020–2023
Dissertation: *Numerical tools for high-fidelity simulation of shock/boundary layer interactions*, degree mark: ottimo
- October/2017 **M.Sc.**, Double Degree, Department of Aerospace Science and Technol-
ogy (DAER), 2014–2017, degree mark: 110/110 cum laude
- October/2017 **M.Sc.**, Double Degree, KTH Royal Institute of Technology, Double De-
gree, Department of Mechanics, 2015–2017
- September/2014 **B.Sc.** Politecnico di Milano, Department of Aerospace Science and
Technology (DAER), 2011–2014, degree mark: 110/110

Publications

Journal Articles, peer-reviewed:

- M. Xiao, **A. Ceci**, P. Orlandi, S. Pirozzoli, (2024). Direct numerical simulation of drag reduction in rotating pipe flow up to $Re_\tau \approx 3000$ *Journal of Fluid Mechanics*, in production, accepted on 26th June 2024.
- **A. Ceci**, A. Palumbo, J. Larsson S. Pirozzoli, (2024). Low-frequency unsteadiness in hypersonic swept shock wave-boundary layer interactions *Physical Review Fluids*, 9(054603). DOI: 10.1103/PhysRevFluids.9.054603

- G. Soldati, **A. Ceci**, S. Pirozzoli (2024). FLEW: A DNS Solver for Compressible Flows in Generalized Curvilinear Coordinates. *Aerotecnica Missili & Spazio*. DOI: 10.1007/s42496-024-00199-4
- **A. Ceci**, S. Pirozzoli, (2023). Natural grid stretching for DNS of compressible wall-bounded flows. *Journal of Computational Physics: X*, 17(100128). DOI: 10.1016/j.jcpx.2023.100128
- **A. Ceci**, A. Palumbo, J. Larsson S. Pirozzoli, (2023). On low-frequency unsteadiness in swept shock wave–boundary layer interactions. *Journal of Fluid Mechanics*, 956, R1. DOI: 10.1017/jfm.2023.2
- **A. Ceci**, A. Palumbo, J. Larsson S. Pirozzoli, (2022). Numerical tripping of high-speed turbulent boundary layers. *Theoretical and Computational Fluid Dynamics*, 36(6), 865-886. DOI: 10.1007/s00162-022-00623-0
- **A. Ceci**, S. Pirozzoli, J. Romero, M. Fatica, R. Verzicco, and P. Orlandi, (2022). Direct numerical simulations of turbulent pipe flow at high Reynolds number. *Physical Review Fluids*, 7(110510). DOI: 10.1103/PhysRevFluids.7.110510
- M. Yu, **A. Ceci**, S. Pirozzoli, (2022). Reynolds number effects and outer similarity of pressure fluctuations in turbulent pipe flow. *International Journal of Heat and Fluid Flow*, 96(108998). DOI: 10.1016/j.ijheatfluidflow.2022.108998
- **A. Ceci**, R. Gojon, M. Mihaescu, (2021). Computational analysis of the indirect combustion noise generation mechanism in a nozzle guided vane in transonic operating conditions. *Journal of Sound and Vibration*, 496(115851). DOI: 10.1016/j.jsv.2020.115851
- **A. Ceci**, R. Gojon, M. Mihaescu, (2019). Large Eddy Simulations for Indirect Combustion Noise Assessment in a Nozzle Guide Vane Passage. *Flow Turbulence and Combustion*, 102, 299-311. DOI: 10.1007/s10494-018-9964-9

Conference Proceedings and others, peer-reviewed:

- G. Soldati, **A. Ceci**, S. Pirozzoli (2024). Development of a DNS solver for compressible flows in generalized curvilinear coordinates. In *AIDA XXVII International congress, Materials Research Proceedings*, 37, pp 222-225, 2023. DOI: 10.21741/9781644902813-48
- **A. Ceci**, (2023). High-fidelity simulation of shock-wave/boundary layer interactions. In *3rd Aerospace PhD-Days 2023, International Congress of PhD Students in Aerospace Science and Engineering, Materials Research Proceedings*, 33, 388 - 396. DOI: 10.21741/9781644902677-57

Awards

September/2024	Add SAPIExcellence 2024 fellowship, project 'Boundary layer Unsteadiness Mitigation through wall surface Perturbations in shock/turbulence interactions - BUMP'.
November/2021	Award winner of the APS DFD 2021 Gallery of Fluid Motion with the entry 'Direct numerical simulations of turbulent pipe flow at high Reynolds number'.
January/2021	Marie Curie Doctoral fellowship within project Horizon 2020, MSCA ETN TEAMAero, ESR 13.

Conferences

- **EFDC1**, Aachen, 2024.
- **AIMETA**, Napoli, 2024.
- **APS DFD**, Washington DC, 2023.
- **3rd Aerospace PhD Days**, Bertinoro, 2023.
- **APS DFD**, Indianapolis, 2022.
- **ECCOMAS**, Oslo, 2022.
- **APS DFD**, Phoenix, 2021.