Alberto **Artoni**

https://alberto1artoni.github.io/

I am a Ph.D. student at Modeling and Scientific Computing (MOX), a laboratory inside the Mathematical Department at Politecnico di Milano. My main interests are *Computational Fluid Dynamics* (CFD), high order methods like *Spectral Element Methods* (SEM) or *Discontinuous Galerkin* (DG) and *computational geometry* applied to ***aeroacoustic problems***.

Personal Data

Place and Date of Birth	Parma | 13 November 1995
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Education

Nov. 2020 - Oct. 2023	Ph.D. in Mathematical Models and Methods for Engineering, Politecnico di Milano Ph.D. scholarship is funded by Mathematical and Mechanical Departments
Sept. 2017 - April 2020	MSc Mathematical Engineering, Politecnico di Milano
Sept. 2014 - Sept. 2017	Bachelor in Mathematical Engineering, Politecnico di Milano

Work Experience

June 2020 - Oct. 2020	Data Engineer at Reply DWH maintenance, dashboard development.

Programming Skills

Good knowledge	C++, MPI, Linux, Mathematica, OpenFOAM, Python, shell, HPC, SQL
Optimal knowledge	Fortran, Matlab

Teaching

Sept. 2022 - Dec. 2022	Teaching Assistant	Curve e Superfici per il Design, *Design della Moda*, Politecnico di Milano
Feb. 2022 - June 2022	Teaching Assistant	Metodi Analitici e Numerici per l'Ingegnera, *Ingegneria Energetica*, Politecnico di Milano
Sept. 2021 - Dec. 2021	Teaching Assistant	Curve e Superfici per il Design, *Design della Moda*, Politecnico di Milano
Feb. 2021 - June 2021	Teaching Assistant	Metodi Analitici e Numerici per l'Ingegnera, *Ingegneria Energetica*, Politecnico di Milano

Publications

Mar. 2023	Artoni et al., *AeroSPEED: a high order acoustic solver for aeroacoustic applications*, DOI: 10.1007/978-3-031- 40864-9_3
Feb. 2023	Artoni et al., *A segregated finite volume - spectral element method for aeroacoustic problems*, https://arxiv.org/abs/2302.03370

Supervised Master Students

June 2023 - Dec. 2023	*A high order DGSEM solver for human voice*, Michelangelo G. Garrone Application of a high order DGSEM solver for the prediction of human voice.
April 2023 - Sept. 2023	*Convergence estimates for a segregated FV-SEM method for an aeroacoustic problem*, Maddalena Zanrosso High order DGSEM solver for the prediction of human voice.
April 2022 - Dec. 2022	*Aeroacoustic characterization of a 3D organ pipe*, Óscar Martínez Díaz Direct numerical computation of the aeroacoustic sound inside an organ pipe.
June 2020 - Oct. 2020	*Validation and application of the Curle's aeroacoustic analogy*, Dario Colombo Validation of a semi-analytical model based on the Curle analogy for automotive applications.

Conferences & Schools

May 2023	Invited speaker at *Math 2 Product*, Taormina
Jan. 2023	Lecture series, *Remote microphone techniques for the characterization of aeroacoustic sources*, Von Karman Institute
July 2022	*17th OpenFOAM workshop*, Cambridge
Jan. 2021	Winter school at Trento, *Advanced numerical methods on hyperbolic PDE*

Projects

Feb. 2023	Iscra C winner	High order methods for the aeroacoustic problem - 2 Iscra C grants 60000 core hours and the access to CINECA's computational resources.
Nov. 2021	Iscra C winner	High order methods for the aeroacoustic problem Iscra C grants 120000 core hours and the access to CINECA's computational resources.
Nov. 2020	Ph.D. Project	High order methods for Aeroacoustics I developed and analysed a new projection strategy with high order numerical methods within the hybrid aeroacoustic framework. OpenFOAM is employed to compute the flow solution. A Discontinuous Galerkin - Spectral Element Method is employed to solve the acoustic problem.
Oct. 2019	MSc Thesis	DG FEM for the Poisson equation on polyhedral meshes Design of a Matlab and Fortran library to solve the Poisson equation on polyhedral meshes

Languages

English	Fluent: TOEIC (Score 920/990), 2020
Italian	Mother tongue