

# MARIO DEL MASTRO

## Mechanical & Energy Engineer

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## EXPERIENCES

PhD degree - Aerospace Engineering  
Technion - Israel Institute of Technology

- 📅 March 2022 – Today    📍 Haifa, Israel
- Microfluidics and porous media flow modeling
  - Experimental micro-PIV analysis
  - Nanofabrication and soft lithography for microfluidics

Model Based Design Engineer  
Rimac Automobili

- 📅 Nov 2019 – Jun 2021    📍 Zagreb, Croatia
- Development of control models for automotive systems
  - PIL and back-to-back analysis for embedded systems
  - Coverage analysis and functional safety testing

Internship – Model Based Design  
NetCom Group

- 📅 Jun 2019 – Nov 2019    📍 Naples, Italy
- Model Based Design for automotive applications
  - MIL and coverage analysis

Internship – Turbomachinery  
von Karman Institute for Fluid Dynamics

- 📅 Oct 2018 – Apr 2019    📍 Brussels, Belgium
- CFD studies in turbomachinery
  - Boundary layer analysis and aerodynamic performance optimization

## PUBLICATIONS

### Peer-Reviewed Journal Articles

- **M. Del Mastro**, A. Terzis, "An experimental investigation of boundary layer over permeable interfaces in Hele-Shaw micromodels," *Physics of Fluids*, vol. 36, no. 11, p. 112110, 2024.  
DOI: 10.1063/5.0238046.
- **M. Del Mastro**, A. Terzis, "On the exact solutions of Darcy–Brinkman model in rectangular Hele–Shaw channels under no-slip and slip boundary conditions," *Physics of Fluids*, vol. 37, no. 3, p. 032005, 2025. DOI: 10.1063/5.0256304.
- **M. Del Mastro**, R. Kabour, A. Terzis, "Experimental validation of viscosity-invariant slip length at fluid–porous interfaces using water and oleic acid," *Physics of Fluids*, vol. 37, no. 8, 2025.  
DOI: 10.1063/5.0280010.

## EDUCATION

Ph.D. in Aerospace Engineering  
Technion – Israel Institute of Technology

📅 March 2022 – Present    📍 Haifa, Israel

Visiting Researcher - Erasmus+  
Technical University of Crete (TUC)

📅 Summer 2025    📍 Chania, Greece

M.Sc. in Mechanical Engineering  
Energy and Environment  
University of Naples Federico II – 110L/110

📅 March 2017 – May 2019

B.Sc. in Mechanical Engineering  
University of Naples Federico II – 109/110

📅 September 2013 – March 2017

## SOFTWARE & TOOLS

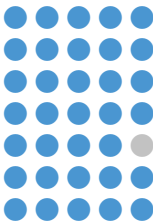
C++   Python   MATLAB   Simulink   Jira  
GitHub   Jama   Jenkins

DaVinci Developer   TargetLink

Catia v.5   Revit   Amesim   NUMECA  
SolidWorks

## SKILLS

Communication  
Problem-solving  
Leadership  
Organisation  
Analysis  
Presentation  
Reporting



## LICENSES

Driving licence - AM, B.

# TEACHING EXPERIENCES

Teaching Assistant

Heat Transfer in Aerospace Engineering (086320)

📅 Fall 2022/2023      📍 Technion - Haifa

Advanced Topics in Propulsion (00860461)

📅 Spring 2024/2025      📍 Technion - Haifa

# CONFERENCES

Scientific Event Chairing and Organization

InterPore Israel Chapter 2022

📅 Sep 18, 2022      📍 Weizmann Institute of Science

Co-organizer of the InterPore Israel Chapter at the Weizmann Institute of Science.

InterPore 2025 – 17th Annual Meeting

📅 May 13–16, 2025      📍 New Mexico, USA

Co-chair of session MS11 – Microfluidics and Nanofluidics in Porous Systems at the InterPore 2025 conference.

Poster presentation

Research Day 2024 - Faculty of Aerospace Engineering

📅 May 29, 2024      📍 Technion - Haifa

Presentated: *Micro-Micro-PIV measurements in a free flow and porous medium coupled system.*

Poster Presentation

Israeli Fluid Mechanics Conference (IFMC2025) – Faculty of Mechanical Engineering

📅 May 29, 2024      📍 Technion, Haifa

Presented: *Multiscale Analysis of Coupled Free-Flow and Porous Media Systems: Structured and Random Configurations.*

Oral Contribution

InterPore2025 - 17th Annual Meeting

📅 May 22, 2025      📍 Albuquerque, New Mexico, USA

Presented *Multiscale Analysis of Coupled Free-Flow and Porous Media Systems: Structured and Random Configurations.*

64th Israel Annual Conference on Aerospace Sciences (IACAS)

📅 March 20, 2025      📍 Haifa, Israel

Presentated: *Analytical flow solutions in rectangular microfluidic channels based on the Darcy-Brinkman model.*

10th World Conference on Experimental Heat Transfer, Fluid Mechanics and Thermodynamics

📅 Aug 22, 2024      📍 Rhodes, Greece

Presented: *Micro-PIV measurements and modelling of a free flow and porous media interface: Effect of Reynolds and porosity.*

# LANGUAGES

Italian



English



# PRIZES

Jacobs Prize for Excellent Publication

📅 March 2025      📍 Haifa, Israel

Awarded by the Technion - Irwin and Joan Jacobs Graduate School for outstanding scientific publication in peer-reviewed journals.

# OTHER EXPERIENCE

Volunteer

Six Nations Championship volunteer

📅 Feb 2014 - Feb 2015      📍 Rome, Italy

- Welcoming and assisting individuals with disabilities at the *Rome Olympic Stadium*.

Rugby player

Israel rugby union

📅 2024 – Today      📍 Haifa, Israel

National championship – Serie B

📅 2023 – 2024      📍 Campania, Italy

Israel rugby union

📅 2022 – 2023      📍 Haifa, Israel

Regional championship – Serie C

📅 2014 – 2022      📍 Campania, Italy

Regional championship – Under 20

📅 2010 – 2014      📍 Campania, Italy

Library clerk

Part time job in the University library

📅 2016 – 2017      📍 Napoli - UNINA

# REFEREES

Prof. Alexandros Terzis

📍 Technion – Israel Institute of Technology

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Prof. Raffaele Tuccillo

📍 University of Naples Federico II

✉ raffaele.tuccillo@unina.it

Prof. Raffaele Dragonetti

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