

Efstathios Chatzoglou

Civil Engineer — PhD in Computational Fluid Dynamics (CFD) — Researcher

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Education

University of Thessaly, Volos, Greece

PhD in Computational Fluid Dynamics with Honours

Oct 2020 – Jul 2025

Scholarship: Center of Research, Innovation, and Excellence (CRIE) UTH

University of Thessaly, Volos, Greece

Integrated Master in Civil Engineering

2014 – 2019

GPA: 8.48/10 (First Class Honours)

Thesis: SPH-based study of turbulent open channel flow with permeable bed (Grade: 10/10)

University of Strathclyde, Glasgow, UK

Erasmus+ Exchange Program

Jan – May 2018

Professional Experience

University of Thessaly – Hellenic Foundation for Research & Innovation (H.F.R.I.), Greece

Researcher (MOVEFREE Project)

Jun 2022 – Jul 2025

- Led hydraulic flow simulation research using particle-based methods, developing and validating SPH models.
- Optimized computational models (C++ and Python) for increased accuracy and efficiency.
- Collaborated with cross-disciplinary teams to pioneer new methodologies for hydraulic and environmental flow simulations.

Wolff and Mueller, Stuttgart, Germany

Construction Manager (Internship)

Jul – Sep 2019

- Supervised three road construction projects, ensuring compliance with quality standards and timelines.
- Implemented safety protocols across sites, enhancing team compliance.

Mandalis Technical Office, Giannitsa, Greece

Office Engineer (Internship)

Jul – Aug 2018

- Drafted blueprints and managed permit documentation for residential projects.

Teaching Experience

Teaching Assistant-University of Thessaly, Volos, Greece

May - Sep 2021

- Led tutorials in Fluid Mechanics and Groundwater Hydraulics.
- Provided academic support, graded assignments, and offered constructive feedback.

Publications

Journal Publications:

- **2025:** Modeling Turbulent Flow in Vegetated Open Channels Using Smoothed Particle Hydrodynamics. *Submitted for review.*
- **2025:** Enhancing smoothed particle hydrodynamics for turbulent flow simulation: implementation of the dynamic Smagorinsky model. *Engineering Applications of Computational Fluid Mechanics, Vol. 19, No 1. DOI: 10.1080/19942060.2025.2591376.*

- **2025:** Turbulent Flow Through Sluice Gate and Weir Using Smoothed Particle Hydrodynamics. *Water*, Vol. 17, No. 2, pp. 152.
- **2024:** From Sparse to Dense Representations in Open Channel Flow Images with Convolutional Neural Networks. *Inventions*, Vol. 9, No. 2, pp. 27. DOI: [10.3390/inventions9020027](https://doi.org/10.3390/inventions9020027).
- **2023:** Smoothed Particle Hydrodynamics-Based Study of 3D Confined Microflows. *Fluids*, Vol. 8, No. 5, pp. 137. DOI: [10.3390/fluids8050137](https://doi.org/10.3390/fluids8050137).
- **2021:** An Assessment of SPH Simulations of Sudden Expansion/Contraction 3-D Channel Flows. *Computational Particle Mechanics*. DOI: [10.1007/s40571-021-00396-z](https://doi.org/10.1007/s40571-021-00396-z).

Conference Publications:

- **2025:** Smoothed Particle Hydrodynamics Simulation of 3D Open Channel Flow Over Vegetated Bed. *19th SPHERic World Conference, Barcelona, Spain*.
- **2023:** Flow Regimes in Sluice Gate-Weir System: 3D SPH-Based Model Validations. *17th SPHERic International Workshop, Rhodes, Greece*.
- **2022:** Hydraulic Jump Simulation via Smoothed Particle Hydrodynamics: A Critical Review. *39th IAHR World Congress, Granada, Spain*.
- **2022:** Simulation of Open Channel Flow Control by Smoothed Particle Hydrodynamics. *Protection and Restoration of the Environment XVI, Kalamata, Greece*.
- **2021:** SPH-Based Study of Confined Microflows Characterized by Abrupt Changes in Cross-Sectional Area. *VII International Conference on Particle-Based Methods, Hamburg, Germany*.

Skills & Certifications

Technical Skills: DualSPHysics (advanced) MATLAB (advanced), Python (intermediate), C++ (intermediate), AutoCad (intermediate), Clusters (intermediate)

Languages: Greek (Native), English (Fluent, C2)

Certifications:

- 1) **Forward Program**, McKinsey.org Mar 2025
Completed training in problem-solving, communication, adaptability, and digital skills for the future of work.
- 2) **Applied Computational Fluid Dynamics**, Siemens via Coursera Sep 2023
- 3) **Programming in Python for Non-Programmers (MOOC)**, Aristotle University of Thessaloniki (AUTH) Nov – Dec 2020

Awards

ReGeneration Finalist , ReGeneration 20th cycle	2025
Honors for Academic Excellence , Technical Chamber of Greece	2024
PhD Scholarship Award , CRIE, University of Thessaly	2021 – 2023
Honors for Academic Excellence , University of Thessaly (1st in Class)	2019
First Prize , Chemical Competition, Hellenic Society of Physics	2012
Third Place , Literature and Poetry Competition	2010

Extracurricular

Elected Member, SPHERic Steering Committee (Early Career Researchers Representative)
Jun 2025 – Present

Member in the International Association for Hydro-Environment Engineering and Research (IAHR) 2022 – Present

Member in the Technical Chamber of Greece

2020 – Present

Volunteer - Erasmus Student Network (ESN), Volos, Greece

2019 – 2021

- Founder of the ESN UTH section and served as Vice-President.
- Facilitated a workshop on public speaking at SEEP Baku-2019 (Azerbaijan).