

Elyas Larkermani

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Summary

Postdoctoral Fellow specializing in Computational Fluid Dynamics (CFD), Large Eddy Simulation (LES), and Turbulence Modeling. Proficient in open-source CFD tools, advanced numerical methods, and high-performance computing. Dedicated to cutting-edge research in fluid dynamics and environmental engineering.

Education

Norwegian University of Science and Technology (NTNU), Faculty of Engineering

Ph.D. in Energy and Process Engineering, Sep 2024

Thesis: Development of a Numerical Framework using Orthogonal Grids and Immersed Boundary Methods for Large Eddy Simulation of Indoor Airflows

Ferdowsi University of Mashhad, Faculty of Engineering

M.Sc. in Aerospace Engineering (Propulsion), Sep 2017

Thesis: Evaluating Modulated Gradient Model (MGM) in Computing Subgrid Scales Stress Tensor Accompanied with PimpleFoam Correction in the OpenFOAM Package

Shahrood University of Technology, Faculty of Mechanical and Mechatronics Engineering

B.Sc. in Mechanical Engineering (Heat and Fluids), Jul 2014

Thesis: Simulation of Separating Oil-Water

Research Interests

- Computational Fluid Dynamics (CFD)
- Large Eddy Simulation (LES)
- Turbulence Modeling
- Environmental Fluid Dynamics
- Numerical Modeling
- Open-Source CFD tools

Academic Experience

Master's Research

Duration: 2014 - 2017

Role: Teacher Assistant

- Aerodynamics
- Supersonic Aerodynamics
- Advanced Propulsion Principles
- Gas Dynamics

Bachelor's Study

Duration: 2010 - 2014

Role: Teacher Assistant

- Strength of Materials
- Fluid Mechanics
- Thermodynamics
- Engineering Mathematics

Publications

Refereed Journal Papers

1. Larkermani, Elyas, Ehsan Roohi, and Fernando Porté-Agel. "Evaluating the modulated gradient model in large eddy simulation of channel flow with OpenFOAM." *Journal of Turbulence* 19.7 (2018): 600-620.
2. Larkermani, Elyas, Guangyu Cao, and Laurent Georges. "Characterization of the density-driven counter-flow through a doorway using Large Eddy Simulation." *Building and Environment* 221 (2022): 109319.
3. Larkermani, Elyas, Hans Bihs, Grégoire Winckelmans, Matthieu Duponcheel, Tobias Martin, Bernhard Müller, and Laurent Georges. "Development of an accurate central finite-difference scheme with a compact stencil for the simulation of unsteady incompressible flows on staggered orthogonal grids." *Computer Methods in Applied Mechanics and Engineering* 428 (2024): 117117.

Awards and Honours

- Member of National Foundation of Elites
- First Grade Graduate of Ferdowsi University of Mashhad, 2017

Skills

- **Pre-Processing:** Proficient in GAMBIT, experienced with SOLIDWORKS and Ansys Design-Modeler
- **CFD codes:** Proficient in Fluent and CFX, experienced with OpenFOAM and REEF3D
- **Post-Processing:** Proficient in ANSYS CFD Post and ParaView, experienced with Tecplot
- **Programming:** Proficient in C++, experienced with Fortran
- **Writing tools:** Proficient in MS Word, MS PowerPoint, and MS Excel
- **Operating System:** Proficient in Ubuntu
- **Version Control System:** Experienced with Git
- **High-Performance Computing (HPC):** Running jobs on HPC, Idun, and Sigma2

Languages

- Persian (Native)
- English (Fluent)
- Norwegian (Intermediate)

Activities

- Gym
- Tennis
- Hiking
- Traveling

References

- **Laurent Georges**
Professor, Department of Energy and Process Engineering (EPT), Norwegian University of Science and Technology, Trondheim, Norway
Email: laurent.georges@ntnu.no
- **Ehsan Roohi**
Associate Professor, Department of Aerospace Engineering, Embry Riddle Aeronautical University, FL, USA
Email: eroohi@som.umaryland.edu