

Dr. Fahim Raees

Curriculum Vitae

Department of Mathematics,
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Objective

I intend to do further research in the field of computational fluid dynamics by keeping my keen interest in the development of efficient and robust methods for the numerical solution of the Mathematical models governing fluid flows.

Education

15-June, 2016 **PhD, CFD & Numerical Mathematics**, Delft University of Technology, The Netherlands.

Title: *A Mass-Conserving hybrid interface capturing method for geometrically complicated domains*

Supervisors: Prof. dr. ir. Kees Vuik & Assistant prof. dr. ir. Duncan van der Heul.

2006 **MSc. Applied Mathematics**, University of Karachi, Pakistan, First Class Honours, 78.20%.

- Advance Numerical Analysis.
- Operational Research.
- Fluid Mechanics.
- Electromagnetic.

2005 **BSc. (Hons.) Mathematics**, University of Karachi, Pakistan, First Class Honours, 72.96%.

- Numerical Methods.
- Linear Algebra.
- Mathematical Physics.
- Statistics and Physics.

Job Experience

2025---till date **Associate Professor**, NED University of Engineering and Technology, Karachi, Pakistan.

- I have taught courses: Simulation and Modeling and Finite Element Analysis at post graduate level.

2016–2025 **Assistant Professor**, NED University of Engineering and Technology, Karachi, Pakistan.

- I have taught courses: Simulation and Modeling and Finite Element Analysis at post graduate level.

2008–2016 **Lecturer**, NED University of Engineering & Technology, Karachi, Pakistan.

- I have taught courses: Numerical Methods and Calculus at undergraduate level.

July-Dec, 2007 **Trainee officer**, MCB bank limited, Pakistan.

- I have worked in branch operations, credit risk assessment and treasury management.

Publications

Journal Publications

2015 *A Mass-conserving Level-Set method for simulation of multiphase flow in geometrically complicated domains*. International Journal for Numerical Methods in Fluids.

Abstract and Conference Proceedings

2013 *Extension of the Mass-Conserving Level-Set method to unstructured polyhedral control volumes for two-phase flows*. Bulletin of the American Physical Society, 66th Annual Meeting of the APS Division of Fluid Dynamics Volume 58, Number 18. Pittsburgh, Pennsylvania, USA.

2012 *The first step towards extension of the Mass-Conserving Level-Set method to discretisations using general polyhedral control volumes*. Proceedings of the 6th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2012), Vienna, Austria.

Technical Reports

2011 *Evaluation of the interface-capturing algorithm of OpenFOAM for the simulation of incompressible immiscible two-phase flow*. Technical report no. 11-07, DIAM, TU Delft.

Presentations

- 2013 Research work presented at the 66th American Physical Society division of Computational Fluid Dynamics meeting, Pittsburgh, Pennsylvania, USA.
- 2013 Invited speaker at the Contactgroup Computational Fluid Dynamics meeting, Deltares, Delft, The Netherlands.
- 2012 Research work presented at the 6th ECCOMAS conference, University of Vienna, Vienna, Austria.
- 2012-2015 Tea Talks, Numerical Analysis group of DIAM, TU Delft.
- 2011-2014 Posters presented at 36th, 37th, 38th and 39th Woudschoten Conference, held in Zeist, The Netherlands.

Award

- 2010 Fully funded scholarship for pursuing PhD studies in the Netherlands.

Computer Skills

- Programming: C++, Python and HTML.
- Computational: MATLAB, OpenFOAM and L^AT_EX.
- Platforms: Linux and Microsoft Windows.

Courses & Certifications

- Project Management (48 hours credit).
- Data Base and Algorithm Design.
- Object Oriented Programming using C++.
- Multiphase flows (5-Days course from J. M. Burgers Centrum).
- Introduction to Programming on the GPU with CUDA (2-Days course from TU Delft).
- Introduction to OpenFOAM (1-Day course from Aerospace faculty, TU Delft).
- Computational Fluid Dynamics I and II (5-Days course from J. M. Burgers Centrum).

Languages

- Native (C1-Level) **Urdu**
- B2-Level **English**
- A2-Level **Dutch**

Competencies

- Analytic thinking: Across my international work experiences, I have learnt to analyse both the technical and organisational problems affecting service delivery in a systematic manner under time-pressure with limited resources.
- Organizational and leadership skills: I acquired the ability to set clear priorities to organise my activities both in short and longer terms. I am social, reliable and resourceful person. I earn trust and lead by setting the examples.
- Presentation skills: My scientific education and my research background allows me to communicate effectively with a variety of audiences and to adapt to different communication styles and purposes easily.