

EMAN YAHIA

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CFD RESEARCHER | MECHANICAL ENGINEER

Mechanical Engineering • Fluid Mechanics • Heat Transfer • Eight Disciplines Problem Solving
Fortran • Fluid Dynamics • MATLAB • C++ • TECPLOT • Finite Differences Methods • Finite Volume Method
Boundary Layer Theory • LaTeX • Analytical Skills • Presentation

Summary:

- Comprehensive knowledge of fluid mechanics, heat transfer, and thermodynamics, and extensive experience with complex flow simulations.
- Adept at spearheading research initiatives to develop highly efficient algorithms using Lattice Boltzmann Method (LBM) for simulations of complex flows and heat transfer phenomena.
- Proficiency in an array of programming and scripting languages, including FORTRAN, C/C++, and MATLAB.
- Solid background in Turbomachinery, propulsion engines, Gas dynamics, and Aeronautics.
- Possessing exceptional analytical, quantitative, and problem-solving skills.
- Experienced in crafting comprehensive technical reports and delivering articulate presentations.
- Demonstrated capability in teaching a diverse range of courses in Aeronautical and Mechanical Engineering at both undergraduate and graduate levels.

EDUCATION & TRAINING

Ph.D. in Engineering and Applied Science, Engineering and Applied Science, University of Colorado, Denver, CO

Department of Mechanical Engineering 12/2021

University of Colorado, Denver, CO GPA: 3.987/4.0

MS in Aeronautical Engineering, Tripoli University, Tripoli (2008)

Department of Aeronautical Engineering 05/2008

Tripoli University, Tripoli GPA: 3.85/4.0

B.Sc. in Aeronautical Engineering, Tripoli University, Tripoli (1998)

ACHIEVEMENTS

- Recipient of the CU Denver's Fall 2021 College of Engineering, Design and Computing Outstanding Graduating
- Tuition Scholarship from the Department of Mechanical Engineering, CU Denver.
- PhD Scholarship from the Ministry of Higher Education, Libya

PROFESSIONAL EXPERIENCE

COLORADO SCHOOL OF MINES, GOLDEN, CO US | 2022

ADJUNCT LECTURER

- Taught the undergraduate Dynamics course to Mechanical and Civil Engineering students in two groups, totaling about 100 students.
- Collaborated closely with fellow faculty members to ensure consistency in course delivery and content.
- Maintained in-person office hours for 3 hours each week for student consultations.
- Created the exam questions, evaluated the students' performance, and supervised students in hands-on experiments.

UNIVERSITY OF COLORADO, DENVER, CO US | 2022

PART-TIME LECTURER

- Pioneered and instructed an innovative Wind Energy course catering to undergraduate and graduate Mechanical Engineering students.
- Formulated comprehensive teaching materials, devised exam questions, assessed student performance, and supervised software design projects.

UNIVERSITY OF COLORADO, DENVER, CO US | 2019 to 2021

GRADUATE INSTRUCTOR

- Developed comprehensive course syllabi, instructional materials, and online video lectures.
- Facilitated interactive in-class and virtual discussions with students.
- Designed and administered rigorous examinations, meticulously evaluating student performance.

UNIVERSITY OF COLORADO, DENVER, CO US | 2018 to 2020

TEACHING ASSISTANT

- Tutored Mechanical and Civil Engineering undergraduate students in the courses Dynamics (5 semesters) and Fluid Dynamics (1 semester)
- Graded homework assignments and projects
- Proctored class exams and held both in-person and virtual office hours.

TRIPOLI UNIVERSITY, TRIPOLI, LY | 2008 to 2012

LECTURER

- Taught an undergraduate college-wide course Statics and Engineering Drawing (about 120 students) and various courses offered by the Aeronautical Engineering department such as Fluid Mechanics, Propulsion, Gas Turbines Cooling System, and Boundary Layer Theory.
- Served as a Supervisor Assistant of Graduate Studies in the Aeronautical Engineering department to assist in program development.
- Supervised students in executing experiments at the low-speed wind tunnel facility and Fluid Mechanics laboratories.

AFFILIATIONS & COMMUNITY INVOLVEMENT

American Physical Society (APS)

A nonprofit organization dedicated to advancing physics knowledge through research journals, meetings, education, outreach, advocacy, and international initiatives.

PUBLICATIONS

- Eman Yahia and Kannan Premnath. "On boundary conditions for lattice kinetic schemes for magnetohydrodynamics bounded by walls with finite electrical conductivities". Submitted to Physical Review E.

- Eman Yahia and Kannan Premnath. "Preconditioned Central Moment Lattice Boltzmann Method on a Rectangular Lattice Grid for Accelerated Computations of Inhomogeneous Flows". Journal of Computational Science 63 (2022): 101821.
- Eman Yahia, William Schupbach, and Kannan Premnath. "Three-dimensional central moment lattice Boltzmann method on a cuboid lattice for anisotropic and inhomogeneous flows". Fluids, 6(9):326, 2021.
- Eman Yahia and Kannan Premnath. "Central moment lattice Boltzmann method on a rectangular lattice". Physics of Fluids, 33(5):057110, 2021.

PRESENTATIONS

- Eman Yahia and Kannan Premnath, "Boundary Schemes for Lattice Boltzmann Methods for Magnetohydrodynamics within Walls with Finite Electrical Conductivities" The 31st International Conference on Discrete Simulation of Fluid Dynamics (DSFD), Suzhou, China, August (2022).
- Eman Yahia and Kannan Premnath, "Lattice Boltzmann Simulations of Magnetohydrodynamic Flows Bounded by Electrically Conducting Walls" Rocky Mountain Fluid Mechanics (RMFM) Symposium, Boulder, Colorado, August (2022).
- Kannan Premnath and Eman Yahia, "On Boundary Conditions for Lattice Kinetic Schemes for Magnetohydrodynamic Flows Bounded by Thin Finitely Conducting Walls" 17th International Conference on Mesoscopic Methods in Engineering and Science (ICMMES), Hammamet, Tunisia, July (2021) – Virtual Presentation.
- Eman Yahia and Kannan Premnath, "Three-Dimensional Central Moment Lattice Boltzmann Method on Cuboid Lattices for Anisotropic and Inhomogeneous Flows" 17th International Conference on Mesoscopic Methods in Engineering and Science (ICMMES), Hammamet, Tunisia, July (2021) – Virtual Presentation.
- Eman Yahia and Kannan Premnath, "Simulation of High Rayleigh Natural Convection Flows using Nonorthogonal Central Moments Lattice Boltzmann Model on a Rectangular Grid" 5th Annual Rocky Mountain Fluid Mechanics (RMFM) Symposium, Boulder, Colorado, July (2019).
- Eman Yahia and Kannan Premnath, "Central Moment Lattice Boltzmann Method for Computation of Flows on Stretched Lattice Grids" American Physical Society (APS) 71st Annual Division of Fluid Dynamics (DFD) Meeting, Atlanta, Georgia, November (2018).
- Eman Yahia and Kannan Premnath, "Central Moment Lattice Boltzmann Method for Computation of Flows on Stretched Lattice Grids" 4th Annual Rocky Mountain Fluid Mechanics (RMFM) Symposium, Boulder, Colorado, August (2018).
- Eman Yahia and Kannan Premnath, "Effective Simulation Strategy of Multiscale Flows using a Lattice Boltzmann Model with a Stretched Lattice" American Physical Society (APS) 70th Annual Division of Fluid Dynamics (DFD) Meeting, Denver, Colorado, November (2017).