Hello
Asmelash Haftu Amaha

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Skills

Computational Fluid Dynamics (CFD), Fluid Mechanics/Machines, Aircraft Propulsion, Engineering Mechanics, Aero Dynamics Gas Dynamics, Wind-Turbine Aerodynamics, Turbomachinery, Shock Waves, Turbulence, CFD with OpenFOAM.

Programming: Python, Cpp, LaTeX, Octave.

Software: OpenFOAM, PySPH, ANSYS-Fluent, NREL-FAST, Inkscape, Paraview, Salome, Gmsh, snappyHexMesh, SolidWorks, Helyx-OS, simScale, matplotlib, Excel, Mayavi.

Limited use of: TCFD, FreeCAD, Blender, origin, tecplot, xfig, SOWFA, OpenFAST, ANSA, STAR CCM+, MPI and OpenMP.

Experience

June 2011 - July 2015

DEC, Bishoftu, Ethiopia - *Lecturer*

- Taught courses at B.Tech level: Engineering Mechanics (Statics and Dynamics), Computational Fluid Dynamics (CFD), Fluid Mechanics, Fluid Machines, Aircraft propulsion, Aircraft Reciprocating Engine, Aircraft GTE Theory, Aircraft GTE Construction, Aircraft Engine Design, Design of Turbines and Exhaust Nozzles, Aeronautical engineering laboratory.
- I did earn excellent evaluation performance in all subjects.

July 2015 - present

IIT Bombay, Mumbai, India - *Research Scholar*

- Research scholar in the Department of Aerospace Engineering, with specialization in aerodynamics.
- Numerical simulation of track based turbines with SPH and OpenFOAM CFD.

Education

September 2002 - April 2007

DEC, Bishoftu, Ethiopia - *B.Tech (Aeronautical Engineering)*

Studied Bachelor of Technology (B.Tech) in the Department of Aeronautical Engineering.

July 2009 - May 2011

DIAT, Pune, India - *M.Tech (Gas Turbine Technology)*

Studied Master of Technology (M.Tech) in Mechanical Engineering Department, with specialization in Gas Turbine Technology.

July 2015 - present

IIT Bombay, Mumbai, India - *Research Scholar (Aerospace Engineering)*

Studying for PhD. in the Department of Aerospace Engineering.

Presentations

1. Simulation of Horizontal Axis Wind Turbine using NREL FAST Solver, ICAER IITB, Mumbai, India, December 2019. https://www.ese.iitb.ac.in/icaer2019/

2. 2D CFD study of Darrieus type straight single bladed VAWT using OpenFOAM, APS DFD, Seattle, USA, November 2019. http://meetings.aps.org/Meeting/DFD19/Session/Q14.4.

3. Numerical Investigation of Shock Wave Turbulent Boundary Layer Interaction over a 2D Compression Ramp. Advances in Aerospace Science and Applications. ISSN 2277-3223 Volume 4, pp. 25-32 © Research India Publications, February 2014.

Publications

1. An improved non-reflecting outlet boundary condition for weakly-compressible sph, Computational Physics (physics.comp-ph), July 2019.
2. Numerical Investigation of Shock Wave Turbulent Boundary Layer Interaction over a 2D Compression Ramp, Advances in Aerospace Science and Applications. ISSN 2277-3223 Volume 4, Number 1 (2014), pp. 25-32 © Research India Publications.
3. Numerical simulation of ramp induced shock wave boundary layer interaction in turbulent flow, The Royal Aeronautical Journal, May 2013.
4. Numerical-Analysis-of-Shock-Wave-Turbulent-Boundary-Layer-Interaction-over-a-2-D-Compression-Ramp, IJAEST, April 2011.

5. Shock Wave Turbulent Boundary Layer Interaction in a 2-D Compression Corner, IJEST, March 2011.

Projects

1. Design of Supersonic Stage for Gas Turbines (Credit Seminar) - December 2015.
2. A Study of Shock Wave Turbulent Boundary Layer Interaction (MTech Dissertation) - May 2011.
3. Preliminary Design of Gas Turbine Stage (MTech Seminar) - May 2010.
4. Analysis of non circular shaft using Finite Element (BTech Project) - April 2007.

Awards and Certificates

1. **Certificate of Participation:** Awarded for paper presentation in the 7th International Conference on Advances in Energy Research, IIT Bombay, Mumbai, India, December 2019.
2. **Certificate of Participation:** Awarded for paper presentation in the 72nd Annual Meeting of the APS Division of Fluid Dynamics, Seattle, USA, November 2019.
3. **Outstanding Instructor Award:** Awarded as the second most outstanding instructor (Defence University College of Engineering) of the academic year 2014.
4. **Certificate of Publication:** Received Certificate of publication from **The Royal Aeronautical Society Journal** (UK London) for publishing international journal paper, June 2013.
5. **Certificate of Achievement:** Obtained Master Diploma certificate in Advanced CFD (STAR CCM+ with HYPERMESH), Techzilon Training Solutions, Bangalore, India, September 2012.
6. **Certificate of Instructional Techniques:** Training in **Instructional Techniques**, Ethiopian Airlines Aviation Academy, November 2011.
7. **Certificate of participation:** For participating in the short course on **Space Systems** conducted by NPS-DRDO Education Collaboration, Pune-411025, India, in March 2011.