Abiy Tasissa

Email: tasisa@ rpi. edu | Phone: 617-233-2269 | Troy, NY | http://homepages.rpi.edu/~tasisa/

EDUCATION

Ph.D. in Applied Mathematics, Rensselaer Polytechnic Institute
(Advisor: Professor Rongjie Lai)

M.S Aeronautics and Astronautics, June 2014, Massachusetts Institute of Technology
Thesis Title: On the formation of Friedlander waves in a compressed gas driven shock tube
 (Advisor: Professor Raul Radovitzky)

B.S Mathematics, June 2012, Massachusetts Institute of Technology

RELEVANT COURSES Advanced PDE & Applications, Numerical PDEs, Numerical ODEs, Numerical Linear Algebra, Methods of Applied Mathematics, Computational Mechanics, Variational PDE Methods

EXPERIENCE

Aramco Services Company   Summer 2015

• Investigated geomechanical models in reservoir simulation which describe the interplay between fluid flow and mechanical deformation
• Completed a comprehensive literature review and highlighted key coupling techniques
• Identified five relevant benchmark problems that can be used for the group's reservoir simulator
• Implemented numerical methods in Python to solve the benchmark problems.

MIT Institute for Soldier Nanotechnologies   June 2012 – June 2014

• Researched the extent to which a shock tube can be used as a small scale replacement for blast testing
• Derived an analytical formula that provides the location at which a blast like wave forms inside a shock tube
• Characterized the pressure profile of wave at this location using Ray tracing
• Implemented Python classes based on the analytical model
• Validated analytical method with a 1D shock tube flow simulation using the Clawpack package

Department of Aeronautics and Astronautics at MIT   Summer 2011

• Developed a method to estimate the decay time and standoff distance from the detonation of an explosive charge given the peak over-pressure at some position
• Found a numerical solution to the problem by formulating it as finding the zeros of a high degree polynomial
• Developed an Android application based on the solution

PUBLICATIONS

Tasissa, Abiy F., et al. "On the formation of Friedlander waves in a compressed-gas-driven shock tube." *Proc. R. Soc. A*. Vol. 472. No. 2186. The Royal Society, 2016.

SKILLS: Analytical Research, Python, Matlab, C, Android

CONFERENCE PRESENTATION

Lydia Bourouiba, Abiy Tasissa, John Bush. 2010. Coughing and Sneezing
63rd Annual Meeting of the APS Division of Fluid Dynamics Volume 55, Number 16

HONORS AND AWADS

Massachusetts Institute of Technology Experimental Studies Group : Excellence in Undergraduate teaching, 2012

United World College of South East Asia(Singapore): Best in Mathematics, Bilingual language and Exemplary Effort, 2008