

Kishwar Hossain, Ph.D.

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PROFESSIONAL OBJECTIVE

Analysis position that utilizes expertise in numerical modeling/simulations, extensive research experience, and education.

SUMMARY OF QUALIFICATIONS

More than 8 years of experience as a research assistant in the field of aerospace engineering, including 3 years as a structural analyst. Highly skilled in numerical modeling, and computational simulations of fluid flow, combustion and structural phenomena. Adept at providing analytical and technical support required for code development. Presented at various industry conferences, including Aerospace Sciences Meeting and Exhibit. Hold Ph.D. in Aerospace Engineering. Possess exceptional written and oral communication skills and ability to facilitate strong interpersonal relationships.

PROFESSIONAL EXPERIENCE

Center for Simulation of Advanced Rockets, UNIVERSITY OF ILLINOIS, Urbana, IL **2005-2008**

Combustion Research Assistant

Member of the Combustion and Energetic Materials Research group

- Conducted a study on burn rates for Miller packs using a 3-step kinetic model to evaluate the robustness of the model.
- Conducted a study on the stability, and extinction characteristics of diffusion flames supported by a spinning methane burner. It was found that non-uniform flames, namely flame holes and spirals appear at near extinction conditions. These flames were simulated using a three-dimensional parallel combustion code in cylindrical coordinates, written in FORTRAN 90 and parallelized using MPI.

Caterpillar Inc., Enterprise Works, UNIVERSITY OF ILLINOIS, Champaign, IL **2003-2006**

Structural Analyst Research Assistant

Conducted structural analysis of earth moving vehicles using finite element methods through an assistantship with Caterpillar Inc. (CAT).

- Created finite element models and conducted modal analysis to identify critical frequencies in newly developed machines.
- Conducted linear static analysis using finite element models for different components of Caterpillar machines for validation of simulations with test results and for identifying weak spots in new designs.
- Conducted non-linear static analysis to identify structural weaknesses in designs during the development of new machines.
- Presented results to clients.

Department of Aerospace Engineering, UNIVERSITY OF ILLINOIS, Champaign, IL **2000-2003**

Aircraft Icing Research Assistant

Member of the Smart Icing Systems group, SIS, a multidisciplinary group dedicated to the development of a semi-autonomous icing protection system for small aircraft.

- Developed numerical algorithms to enhance the envelope protection systems of aircrafts impaired under icing conditions and implemented the algorithms in a flight simulator using C.
- Developed a neural network in MATLAB to characterize icing effects as a function of aerodynamic coefficients.

Department of Mechanical Engineering, LAFAYETTE COLLEGE, Easton, PA **1998-2000**

Viscoelastic Material Property Research Assistant

Conducted research on the behavior of viscoelastic materials under tensile loads.

- Developed a diagnostic setup to study thermoforming using thermocouples in conjunction with the labview diagnostic interface.
- Designed and manufactured a pseudo fluidized bed for coating prepregs with microparticles.

EDUCATION AND AFFILIATIONS

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN, Urbana-Champaign, IL

Ph.D. in Aerospace Engineering

- Dissertation: Simulation of Flame Patterns Supported by a Rotating Burner

Master of Science in Aeronautical and Astronautical Engineering

- Thesis: Open Loop Longitudinal Envelope Protection in Icing Encounters

LAFAYETTE COLLEGE, Easton, PA

Bachelor of Science in Mechanical Engineering with Honors, minor in Mathematics, Excel Scholar

Member, American Institute of Aeronautics and Astronautics, Combustion Institute and Sigma Gamma Tau Honorary Aeronautical Engineering Society.

COMPUTER SKILLS

C, FORTRAN, MPI, OPENMP, MATLAB, Mathematica, PRO/E, SIMULINK, LABVIEW, ABAQUS, NASTRAN, IDEAS, HyperMesh, Microsoft Office, LATEX.