Daniel W. Zaide

CONTACT INFORMATION	Scientific Computation Research Center *Phone:* (303) 919-7338 Rensselaer Polytechnic Institute, *E-mail:* dan.zaide@gmail.com Troy, NY, 12180 *Website:* www.danielzaide.com

CITIZENSHIP   Canada

EDUCATION

University of Michigan, Ann Arbor, Michigan, USA
Ph.D., Aerospace Engineering and Scientific Computing, June 2012
- Advisors: Professor Philip L. Roe and Professor Kenneth G. Powell
- Dissertation: *Numerical Shockwave Anomalies*

M.S., Applied Mathematics, April 2011
M.S.E., Aerospace Engineering, April 2009

University of Toronto, Toronto, Ontario, Canada
B.A.Sc. with Honours, Engineering Science, June 2007

PROFESSIONAL DEVELOPMENT

Instructional Skills Workshop, Certificate of Completion, December 2012
Applications of Parallel Computers, Certificate of Completion, May 2013
Foundations of Project Management I, Certificate of Completion, May 2013

AWARDS

20th AIAA CFD Conference, 4th AIAA CFD Student Paper Competition, 2011
- 1st Place, "Shock Capturing Anomalies and the Jump Conditions in One Dimension"

Natural Sciences and Engineering Research Council of Canada, 2010-2012
- Postgraduate Doctoral Scholarship (PGS-D)

RELEVANT EXPERIENCE

Scientific Computation Research Center, Rensselaer Polytechnic Institute, Troy, NY
Post-Doctoral Research Associate   **Jan 2015 - Present**
- Developing algorithms and software for curved mesh generation and adaptation in parallel for finite element methods, specifically with Bézier shape functions.
- Developing thermodynamic models for intelligent building facade design in collaboration with the Center for Architecture Science and Ecology.

Department of Mechanical Engineering, University of British Columbia
Post-Doctoral Research Associate   **September 2012 - December 2014**
- Researched and developing algorithms and software under Dr. Carl Ollivier-Gooch for unstructured mesh adaptation in the simulation of the semi-conductor device manufacturing process, specifically local surface insertion into pre-existing meshes.
- Implemented new unstructured mesh algorithms into C++ framework for localized surface insertion into existing meshes, developing both software and algorithm test cases to ensure functionality and robustness.

Sessional Lecturer, Undergraduate Aerodynamics   **January 2013 to April 2013**
- Developed course notes and supplementary resources for the undergraduate aerodynamics course to senior engineering students. Lectured, graded, and administered course material.

Center for Radiative Shock Hydrodynamics, University of Michigan
Graduate Student Research Assistant   **September 2009 to June 2012**

- Collaborated with a large research team on numerical method development for the simulation and uncertainty quantification of large scale radiative shockwave experiments.

Los Alamos National Lab, Los Alamos, New Mexico, USA
Graduate Student Research Assistant   **May 2010 to August 2010**
- Examined anomalous behavior in the numerical simulation of shockwaves and implemented implicit-explicit timestepping methods for radiation hydrodynamics under the supervision of Dr. Robert B. Lowrie.

Department of Aerospace Engineering, University of Michigan
Graduate Student Instructor   **2007-2011**
- Teaching Assistant for AERO 325: Introduction to Aerodynamics, AERO 523: Computational Fluid Dynamics I, and AERO 520: Compressible Flow.
    - Responsible for holding office hours, answering questions about course material, and assisting with homework material and developed homework and midterm solutions and grading rubrics.

SELECTED CONTRIBUTIONS

Schulz, Justin, Zaide, Daniel W., Dyson, Anna, Oberai, Assad, and others, **A Method for Modeling Double-Skin Facade with Energy Capture: Integrated Concentrating Solar**, *In preparation.*

Zaide, Daniel W., Lu, Qiukai, and Shephard, Mark S., **A comparison of C^0 and G^1 continuous curved meshes on high-order finite element simulations**, *24th International Meshing Roundtable*, Oct 2015.

Zaide, Daniel W. and Ollivier-Gooch, Carl F., **Inserting a surface into an existing unstructured mesh.** *International Journal for Numerical Methods in Engineering*, 2015.

Zaide, Daniel W. and Ollivier-Gooch, Carl F., **Anisotropic Layering via curve insertion into unstructured meshes.** *23rd International Meshing Roundtable*, Oct 2014.

Zaide, Daniel W. and Roe, Philip L., **A Second-Order Finite Volume Method that Reduces Numerical Shockwave Anomalies in One Dimension.** *21st AIAA Computational Fluid Dynamics Conference*, June 2013

Zaide, Daniel W. and Roe, Philip L., **Shock Capturing Anomalies and the Jump Conditions in One Dimension.** *20th AIAA Computational Fluid Dynamics Conference*, June 2011

Zaide, Daniel W. and Roe, Philip L., **Entropy-based Mesh Refinement, II: A New Approach to Mesh Movement.** *19th AIAA Computational Fluid Dynamics Conference*, June 2009

PROFESSIONAL SERVICE

Team Mentor - Simon Fraser University Unmanned Aerial Vehicle Team
Co-Faculty Advisor - University of British Columbia Human Powered Vehicle Team

TECHNICAL SKILLS

Programming: C, C++, Python, Matlab
Word Processing Software: TeX, LaTeX, Microsoft Office, Open Office
Technical Software: Matlab, Mathematica, Octave, Paraview
Operating Systems: Microsoft Windows, Linux, OS X

REFERENCES

Available Upon Request