Daniel W. Zaide

Contact Information

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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
- 1^{st} Place, "Shock Capturing Anomalies and the Jump Conditions in One Dimension"

Natural Sciences and Engineering Research Council of Canada, 2010-2012

Relevant Experience

Apple Inc, Cupertino, CA
Siri, Software Development Engineer **Jan 2019 - Present**
- Increasing freshness of data in Siri's knowledge graph by improving robustness and reliability of data feeds and pipelines.
- Developing and implementing a new data model and data indexing service to improve control, tracking, and organization of structured knowledge data.

Maps, Software Development Engineer **June 2017 - Jan 2019**
- Designing and implementing algorithms for processing of world map data to serve and render in the display of Apple Maps.
- Improving Apple Maps by implementing geometric generalization algorithms at multiple levels of detail, reducing data size while displaying relevant information and providing a smooth visual experience.
- Collaborating with data, evaluation, cartography, and client teams at Apple Maps to improve data quality and produce relevant data for map display teams.
- Developing and maintaining software in a mixed Apache Spark and MapReduce framework in Scala/Java/C++ for the data processing pipeline.

Silicon Engineering Group, Synopsys Inc., Mountain View, CA
R & D Engineer, Sr I. **Mar 2016 - May 2017**
- Researching and implementing meshing and computational geometry algorithms for semiconductor device simulation.
- Maintaining tests and software infrastructure for meshing libraries and supporting simulation software teams within the Technology CAD teams at Synopsys Inc.

Scientific Computation Research Center, Rensselaer Polytechnic Institute, Troy, NY
Post-Doctoral Research Associate **Jan 2015 - Feb 2016**

- 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.

Sessional Lecturer, Undergraduate Aerodynamics **January 2013 to April 2013**

- Developed course notes and supplementary resources for the undergraduate aerodynamics course to senior engineering students.

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.

Selected Contributions

Zaide, Daniel W. and Ollivier-Gooch, Carl F., **Inserting a Shock Surface into An Existing Unstrutured Mesh**, *Shock Fitting, Classical Techniques, Recent Developments, and Memoirs of Gino Moretti*, 2017

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., **Shock Capturing Anomalies and the Jump Conditions in One Dimension.** *20th AIAA Computational Fluid Dynamics Conference*, June 2011

Professional Service

Team Mentor - Simon Fraser University Unmanned Aerial Vehicle Team
Co-Faculty Advisor - University of British Columbia Human Powered Vehicle Team
Journal Reviewer: Computer-Aided Design, Journal of Computational Physics Programming:

Programming Languages

C, C++, Python, Java, Scala