Andrew DeJong, PhD

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SUMMARY

- Multidisciplinary background in aero-, hydro-, and structural dynamics
- More than a decade of experience in applying computational science to solve dynamics and design problems
- Award-winning communicator with experience teaching, training, and presenting

EXPERIENCE

Calvin University, Grand Rapids, MI
Adjunct Professor in Engineering *2021 – Present*

- Teaching:
  - Introduction to Engineering Design (ENGR 101)
  - Engineering Graphical Communications Lab (ENGR 181)
  - Dynamics of Machinery (ENGR 334)

U.S. Navy, Naval Surface Warfare Center Carderock Division, Bethesda, MD
Research Engineer *2016 – Present*

- Develop, implement, and test numerical analysis software for fluid dynamics systems
- Collaborate with internal and external clients to create innovative methods for simulating complex fluid flow and computing design variables
- Optimize algorithms for parallel computing on high-performance clusters of multi- and many-core processors
- Research the effect of numerical, algorithmic, and hardware improvements on solution accuracy, computational time, and parallel concurrency
- Manage projects in an agile development cycle with a multidisciplinary team of developers, engineers, and product managers
- Deliver features driven by tech-push and market-pull on a deadline while balancing cost and performance

United States Air Force Research Lab
ASEE Summer Research Fellow *2014*

- Adapted existing fluid simulator to broaden fluid-structure interaction capabilities
- Presented work to Air Force Research Lab civilian researchers and contractors

The George Washington University, Washington, DC
PhD Candidate *2012 – 2016*

- Develop high performance, parallel simulations to better understand and utilize fluid flow physics in complex geometries such as moving structures and wing-gust interactions
- Present research at conferences to leading professionals and train new students

The George Washington University, Washington, DC
Teaching Assistant *2012 – 2014*

- Developed curriculum and taught computer-aided design lab for first-year students
- Lectured, tutored, tested, an graded students on fundamentals of graphical design and communication

Imagnus Biomedical, Washington, DC
Director of Research and Development *2012 – 2015*

- Manage startup company's interdisciplinary engineering team through research and product development of patented medical infusion monitor
- Collaborate with business and financial management on business and research plans and coordinate interdepartmental communications

Nucraft Furniture Company
Design Engineering Intern *2007 – 2010*

- Created over 30 time-saving scripts and macros in VBA for common CAD tasks
- Conducted custom troubleshooting with customers to solve in-field problems

EDUCATION

PhD in computational fluid dynamics
The George Washington University, Washington, DC 2016
MS in design of dynamic systems
The George Washington University, Washington, DC 2012
BS in engineering with honors in a mechanical concentration
Calvin College, Grand Rapids, MI 2010

PUBLICATIONS, PROCEEDINGS, PATENTS, AND AWARDS

- Leasca and DeJong, Roughness Wall Modeling for Naval Applications in CREATE-AV Kestrel as Modified by NSWCCD, AIAA-2023-0642, 2023 AIAA SciTech Forum
- Jemison, White, DeJong, Kannepalli, Wilson, Engel, and Starr, A Prototype Incompressible, Pressure-Based Solver for Free-Surface Flows in CREATE-AV Kestrel, AIAA-2023-0643, 2023 AIAA SciTech Forum
- ASME Fluid Engineering Division's Robert T Knapp 2020 Award, for 2018 ASME FEDSM paper by Aram and DeJong.
- Aram and DeJong. Numerical Comparison Between Steady and Sweeping Jets for Active Flow Control Applications. ASME 2018 5th Joint US-European Fluids Engineering Division Summer Meeting (2018)
- DeJong and Liang. Parallel spectral difference method for predicting 3D vortex-induced vibrations. Computers and Fluids 98 (2014) 17-26
- Best Presentation Award, 2014 Grad-Student and Post-Doc Showcase Symposium, University of Maryland
- DeJong and Liang. 3D spectral difference solver for simulating vortex-induced vibrations of circular cylinders. AIAA-2013-2455, 21st AIAA Computational Fluid Dynamics Conference (2013)

- Diskint, Spinella-Mamo, DeJong, Tejada, and Keating. Medical flow rate monitor and method of use. WIPO Patent Application PCT/US2013/031107. Publication Number WO2013138537 (2013)
- Liang and DeJong. Massively parallel spectral difference solver for simulating vortex-induced vibrations of circular cylinders. IMECE2012-93334, ASME International Mechanical Engineering Congress & Exposition (2012)

PROFESSIONAL ACTIVITIES

American Institute of Aeronautics and Astronautics
Member — *2012 – Present*

ASME PVPC, J Fluid Eng, and J Fluid Struct
Manuscript Reviewer — *2013 – 2016*

American Society of Mechanical Engineers
Member — *2009 – Present*
Regional Science and Engineering Fair Judge — *2012 – 2017*
Calvin College Student Chapter President — *2009 – 2010*