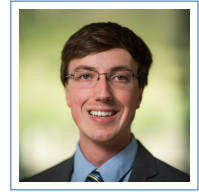


John Jasa

Aerospace PhD candidate

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Education

- 2015–present **Ph.D.**, University of Michigan, 4.0 GPA.
Aerospace Engineering
- 2015–2016 **M.Sc.**, University of Michigan, 4.0 GPA.
Aerospace Engineering
- 2011–2015 **B.Sc.**, University of Nebraska-Lincoln, 3.97 GPA.
Mechanical Engineering

Research Experience

- 2015–present **Graduate researcher**, MDO Lab, Ann Arbor, MI.
Supervised by Joaquim R.R.A. Martins
 - Performed aerostructural analyses directly within a trajectory optimization problem to investigate the benefits of morphing lifting surfaces compared to static design
 - Quantified the effects of thermal constraints in supersonic aircraft mission performance using CFD in a multidisciplinary design optimization problem
 - Developed OpenAerostruct, an open-source low-fidelity aerostructural optimization tool
- 2017–present **Graduate researcher**, NASA Glenn Research Center, Cleveland, OH.
Pathways intern within the Propulsion Systems Analysis Branch
Mentored by Justin Gray
 - Implemented aero-thermal-propulsion-mission optimization problems using NASA's OpenMDAO open-source framework
 - Determined the optimal flight path for a thermally constrained aircraft to complete a nominal mission when using a fuel thermal management system
- 2012–2015 **Undergraduate researcher**, Polymer Mechanics Lab, Lincoln, NE.
Supervised by Mehrdad Negahban
 - Performed atomistic simulation systems to investigate mechanical loading effects on various amorphous glassy polymers
 - Studied response of polycarbonate after thermal aging for different mechanical loading deformations
 - Interpreted molecular dynamics simulation results for publication

- 2014 **Summer research intern**, NASA Glenn Research Center, Cleveland, OH.
Propulsion Systems Analysis Branch
Supervised by Meng-Sing Liou
- Produced a CAD model of the Energy Efficient Engine combustor
 - Generated parametric hybrid hexahedral and tetrahedral meshes for later CFD studies

- 2013 **Undergraduate researcher**, Intuitive Biometrics Lab, Lincoln, NE.
Supervised by Ben Terry
- Designed electronic circuit and PCB for timed application of sensor for internal gastrointestinal robotic capsule
 - Refined circuit layout and system components to reduce size and power requirements

Work Experience

- 2013 **Design engineering intern**, Spirit Aerosystems, Wichita, KS.
Thrust Reverser Actuation Systems
- Designed in CATIA a hydraulic actuator for aircraft thrust reversers that was 8% lighter and easier to produce than previous systems
 - Identified critical points of failure for the previous thrust reverser design through loads analysis

- 2012–2014 **Lab assistant**, Engineering CAD lab, Lincoln, NE.
Assistant for CAD-based design projects
- Instructed students to use AutoCAD and SolidWorks software
 - Assisted students in computer design projects concerning additive manufacturing

Outreach and Volunteering

- 2017 **Program instructor**, Detroit Area Pre-College Engineering Program (DAPCEP), Ann Arbor, MI.
- Developed and led activities for 22 high school students from the greater Detroit area each Saturday for a quarter, culminating in their poster presentations to peers and family
 - Helped students learn via hands-on experiments to spark interest in airplanes, rockets, space, engineering, and the scientific process
- 2016–present **Activity leader**, Females Excelling More in Math, Engineering, Science (FEMMES), Ann Arbor, MI.
- Lead aluminum foil boat design activities to introduce elementary-aged girls to the engineering process and to encourage them to pursue STEM careers
- 2017–present **Bicycle repair worker**, Common Cycle, Ann Arbor, MI.
- Repair bicycles for people in need within the local community and teach them how to maintain their bicycles

Professional Involvement

- 2018–present **Aerospace Diversity, Equity, and Inclusion Committee**.
Founding member

- 2016–present **Graduate Student Advisory Committee.**
President 2018–present
- 2011–present **American Institute of Aeronautics and Astronautics.**
Design/Build/Fly Team Leader 2013–2015
- 2011–2015 **American Society of Mechanical Engineers.**
President 2013–2015
- 2013–2015 **Pi Tau Sigma Mechanical Engineering Honorary Society.**
- 2013–2015 **Tau Beta Pi Engineering Honorary Society.**

Honors and Awards

- 2016 Best-in-session Poster Presentation at Engineering Graduate Symposium
- 2015 University-wide Award for Outstanding Character and Citizenship
- 2015 College of Engineering Most Outstanding Senior
- 2015 Pi Tau Sigma Most Outstanding Senior
- 2014 Schewe Leadership Award
- 2012–2015 NASA Nebraska Fellow

Scholarships and Fellowships

- 2015–present National Science Foundation Graduate Research Fellowship
- 2014 Frank and Dorothy Miller National ASME Scholarship
- 2014 Melvin J. Hartmann Memorial Scholarship
- 2012, 2013 Nebraska ASME Scholarship
- 2011–2015 University of Nebraska-Lincoln Chancellor's Scholarship
- 2011–2015 National Merit Scholarship

Journal Publications

John T. Hwang, **John P. Jasa**, and Joaquim R. R. A. Martins. High-fidelity design-allocation optimization of a commercial aircraft maximizing airline profit. *Journal of Aircraft*, 2018. In press.

Ney R. Secco, **John P. Jasa**, Gaetan K. W. Kenway, and Joaquim R. R. A. Martins. Component-based geometry manipulation for aerodynamic shape optimization with overset meshes. *AIAA Journal*, 56(9):3667–3679, 2018. doi:10.2514/1.J056550.

John P. Jasa, John T. Hwang, and Joaquim R. R. A. Martins. Open-source coupled aerostructural optimization using Python. *Structural and Multidisciplinary Optimization*, 57:1815–1827, 2018. doi:10.1007/s00158-018-1912-8.

Zesheng Zhang, Lili Zhang, **John P. Jasa**, Wenlong Li, George Gazonas, and Mehrdad Negahban. High fidelity computational characterization of the mechanical response of thermally aged polycarbonate. *Modelling and Simulation in Materials Science and Engineering*, 25(5):055012, 2017. doi:10.1088/1361-651X/aa7341.

Lili Zhang, Zesheng Zhang, **John P. Jasa**, Dongli Li, Robin O Cleveland, Mehrdad

Negahban, and Antoine Jérusalem. Molecular dynamics simulations of heterogeneous cell membranes in response to uniaxial membrane stretches at high loading rates. *Scientific Reports*, 7(1):8316, 2017. doi:10.1038/s41598-017-06827-3.

Lili Zhang, **John P. Jasa**, George Gazonas, Antoine Jérusalem, and Mehrdad Negahban. Extracting continuum-like deformation and stress from molecular dynamics simulations. *Computer Methods in Applied Mechanics and Engineering*, 283:1010–1031, 2015. doi:10.1016/j.cma.2014.10.018.

Conference Publications

John P. Jasa, Justin S. Gray, Jonathan A. Seidel, Charles A. Mader, and Joaquim R. R. A. Martins. Multipoint optimization of a variable cycle engine using gradient-based optimization. In *AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference; AIAA SciTech Forum*, San Diego, CA, January 2019.

John P. Jasa, Charles A. Mader, and Joaquim R. R. A. Martins. Trajectory optimization of supersonic air vehicle with thermal fuel management system. In *AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference*, Atlanta, GA, June 2018. doi:10.2514/6.2018-3884.

John P. Jasa, John T. Hwang, and Joaquim R. R. A. Martins. Design and trajectory optimization of a morphing wing aircraft. In *2018 AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference; AIAA SciTech Forum*, Orlando, FL, January 2018. doi:10.2514/6.2018-1382.

Anirban Chaudhuri, **John P. Jasa**, Joaquim R. R. A. Martins, and Karen Willcox. Multifidelity optimization under uncertainty for a tailless aircraft. In *2018 AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference; AIAA SciTech Forum*, Orlando, FL, January 2018. doi:10.2514/6.2018-1658.

Ney R. Secco, **John P. Jasa**, Gaetan K. W. Kenway, and Joaquim R. R. A. Martins. Component-based geometry manipulation for aerodynamic shape optimization with overset meshes. In *18th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference*. American Institute of Aeronautics and Astronautics, June 2017. AIAA 2017-3327. doi:10.2514/6.2017-3327.

Presentations

John P. Jasa, Justin S. Gray, Jonathan A. Seidel, Charles A. Mader, and Joaquim R. R. A. Martins. Multipoint optimization of a variable cycle engine using gradient-based optimization. *Conference presentation*, San Diego, CA, January 2019.

John P. Jasa, Charles A. Mader, and Joaquim R. R. A. Martins. Trajectory optimization of supersonic air vehicle with thermal fuel management system. *Conference presentation*, Atlanta, GA, June 2018.

John P. Jasa, John T. Hwang, and Joaquim R. R. A. Martins. Design and trajectory optimization of a morphing wing aircraft. *Conference presentation*, Orlando, FL, January 2018.

John P. Jasa, John T. Hwang, and Joaquim R. R. A. Martins. Design and trajectory optimization of a morphing wing aircraft. *Poster presentation*, Ann Arbor, MI, November 2017.

John P. Jasa, Ney R. Secco, and Joaquim R. R. A. Martins. Development of a robust and streamlined multifidelity optimization methodology. *Poster presentation*, Ann Arbor, MI, November 2016.

John P. Jasa, Lili Zhang, and Mehrdad Negahban. Experimental verification of molecular dynamics simulations. *Poster presentation*, Lincoln, NE, April 2013.

John P. Jasa, Lili Zhang, and Mehrdad Negahban. Computational modeling of nanoscale glassy polymers. *Poster presentation*, Lincoln, NE, April 2012.

Computer skills

Proficient: Python, Linux, open-source development, \LaTeX , Microsoft Office, GitHub
Experienced: CFD, FEA, Fortran, high-performance computing