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Joe Shields

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Joedang.github.io

Education

- Portland State University **Sep. 2013 – Jun. 2016**
  B.S. Mechanical Engineering, Maseeh College of Engineering and Computer Science
  B.S. Physics, College of Liberal Arts and Sciences
  3.65 GPA

- Portland Community College **Sep. 2008 – Jun. 2010, Sep. 2011 – Sep. 2013**
  3.0 GPA

Languages and technologies

- R, MATLAB, C++, Python, Bash, Vim, Git, SolidWorks, Abaqus, AutoCAD, GIMP, Inkscape
- LaTeX, Microsoft Office, Libre Office, Google Docs, etc.
- Ubuntu, Windows

Major Projects

- Director of Airframe Design and Manufacture **Dec. 2015 – present**
  Created an open-hardware carbon fiber rocket airframe for the Portland State Aerospace Society
  Managed interdisciplinary projects among students and professionals
  Published and presented a conference paper on the project for AIAA SPACE 2016
  Extensively documented design an manufacturing processes and fostered institutional knowledge

- OreSat Structure Design Lead **Jan. 2017 – present**
  Coordinated the design of all mechanical subsystems in Oregon's first satellite
  Incorporated constraints from NASA, NanoRacks, and OreSat electrical subsystems

Small Projects

In addition to the projects below, you can check out the rest of my portfolio at `github.com/Joedang/Portfolio`.

- OpenFOAM analysis
  A simulation of supersonic flow around the nosecone of PSAS' new rocket, used to inform its design and estimate aerodynamic heating.
- Restricted 3-body simulation `github.com/Joedang/restricted_three_body_problem`
  An R script for investigating the motion of satellites within planet-moon systems.
- Ballistic trajectory simulation `github.com/Joedang/Portfolio/tree/master/projectile`
  Realistic scenarios of short-range ballistic motion of various projectiles on different planets, accounting for buoyancy, drag, centrifugal, and Coriolis effects.
- N-body simulation `github.com/Joedang/Portfolio/tree/master/MATLAB_orbits`
  Various scenarios involving an arbitrary number of charged massive particles.

rendered June 29, 2017