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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

Projects and Awards

- 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

- PCC Art Beat competition **May 2012**
  Composed and conducted an original piece for about 30 members
  Earned 1st place in the composition competition

Relevant Projects

I've written a few orbital simulations to help myself learn new languages, investigate physics, and demonstrate concepts from my coursework. In addition to the projects below, you can check out the rest of my portfolio at `github.com/Joedang/Portfolio`.

- 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 March 8, 2017