Daniel A. Diurczak

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EDUCATION

University of Illinois at Urbana-Champaign May 2019
B.S, Aerospace Engineering Cumulative GPA: 3.38

COMPUTER SKILLS

ANSYS Fluent, HyperWorks, Altair OptiStruct, Abaqus CAE, NX, Creo, SolidWorks, Java, Python, C, MATLAB, Microsoft Project, Microsoft Excel

EMPLOYMENT

Finite Element Engineer, RFA Engineering *August 2019 – Present*

- Provided CAE support on-site John Deere Dubuque Works for construction and forestry products.
- Developed and pre-processed finite element models for Abaqus Standard and OptiStruct solvers using HyperMesh.
- Performed linear static, quasi-static, non-linear static, and modal analysis to validate Skid-Steer Loaders, Articulated Dump Trucks, Excavators and other construction machinery to validate design changes.
- Analyzed bolted joint models using detailed representations of the bolt and contacts.
- Determined load cases by analyzing acceleration, string pot, and strain gauge data from stress tests to determine the most damaging load cases and correlating that information for effective criteria in a finite element analysis.
- Validated finite element results from linear static hand calculations, and stress test data.
- Involved as structural analyst in several cost reduction products, where cost reduction would be achieved by improved design, improved tooling, or change in material.
- Acquired level 1 certification for Backhoe, Knuckleboom Loader and 4 Wheel Drive Loader for basic operations.

INTERNSHIPS

Project Engineering Intern, Gogo Air *June 2018- August 2018*

- Aided project engineering department by updating redlines on documentation, refinement of managerial schedules, compiling key documentation for customer reviewal, and tracking engineering change orders for ease and accessibility.
- Provided engineering support in testing fairing for leakage using qualitative data
- Utilized Smartsheet to update service bulletins, substantiation documentation, and maintenance manuals for directed certification track on supplemental type certificate,
- Undertook roles of project engineering lead for deinstallation of United Airline's fleet of Boeing 757's.

RESEARCH

Multi-mode Micro Propulsion Research Group (MMMPRG) *September 2017-January 2018*

- Assisted in design of an experimental hybrid propulsion system to be fitted for CubeSat usage.
- Developed domains for (computational fluid dynamics) CFD analysis for the manifold and thruster block of this propulsive unit. Mass flow parameters were considered as the dependent variable in our studies, while the geometry and back pressures were altered.
- Performed simulations of fuel flow in an incompressible and irrotational model in Fluent using pressure enforced boundary conditions, and a zero-shear wall treatment.
- Iterative method was employed to optimize fluid flow through manifold feed system against mass flow characteristics to be able to simulate uniform flow out of the feed into an array of 10000 microtubes.

RELEVANT WORK

Undergraduate Grader *August 2018-December 2018*

- Responsible for grading 70 students for the Mechanics of Aerospace Structures course.
- Coordinated with the professor to determine an appropriate grading breakdown for each assignment.
- Delivered homework assignments weekly to the professor and expressed common misconceptions by the students.

PROJECTS

Senior Design *August 2018-May 2019*

- Involved on a team of various disciplines to design and perform analysis on a thin-haul aircraft according to 14 CFR Part 23 for submission to AIAA in a national contest.
- Performed initial design of a wing for the aircraft by method of similarity analysis, and methods outlined by Roskam.
- Conducted first ordered aerodynamic analysis using self-developed MATLAB scripts, OpenVSP and AVL. Higher ordered analysis was performed using ANSYS Fluent RANs solver.
- Developed tools for parsing data and visualization using MATLAB.

VOLUNTEERING

Greater Chicago Food Depository *July 2018*

- Involved in Cabbage Project where a team sorted through over 10,000 lbs. of cabbage to be used in food pantries in the greater Chicago area.

Plainfield Chamber of Commerce *2012-2015*

- Helped set up weekly cruise nights in summer, which included helping car owners determine where to park cars and help attendees with any questions they might have.