Andre Gouws

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OBJECTIVE

I am a student of Mechanical Engineering and am looking to acquire an internship in summer 2018 where I can use my technical skills and experience in design, research, and analysis to benefit a laboratory, university, or business in industry.

EDUCATION

NC State University Cumulative GPA 3.63 Graduating Spring 2018
B.S. in Mechanical Engineering Minor: Physics

RELEVANT COURSEWORK

- Electives include Controls, Orbital Mechanics, Spaceflight Exploration Systems, Astrophysics and Modern Physics.
- Constructed a light-detecting nuclear probe to measure energy output tested in the NC State PULSTAR reactor.
- Created quadcopter controller in team project using both theoretical (root locus) and frequency response methods.

EXPERIENCE

Component Science R&D Intern **Summer 2016 – Present**
Sandia National Laboratories Albuquerque, NM

- Created finite element simulations of hermetic seals and embedded fiber optic sensors, and conducted verification and validations of such finite element models under both thermal and dynamic mechanical loads.
- Designed polarized fiber optic sensing regime using embedded Fiber Bragg Gratings to detect transverse and axial strains in epoxy encased fibers, allowing for multi-axis strain sensing in composite materials with minimally invasive sensing devices in close coordination with project clients.
- Won NW SPRINT challenge, the Nuclear Weapon Summer Project Realization Institute, to design a shock failsafe for high consequence applications. Led team utilizing multi-material additive manufacturing to experimentally prototype various forms of an irreversibly failing bi-stable beam design.
- Synergized with team members to design & prototype the beams to fail predictably in response to highly abnormal and variable shock environments. Team design won the challenge besting two other teams with competing shock failsafe designs, with winning decision being made by panel of academics and industry professionals.

Nuclear Science Research Assistant **Spring 2017 - Present**
Consortium for Advanced Simulation of Light Water Reactors Raleigh, NC

- Developed a suite of MATLAB analysis tools to process bubble data from nuclear subchannel multiphase flow simulations and diagnosed mesh bias issue adversely affecting bubbly flow.
- Improved efficiency of message pass interface routines in FORTRAN for fluid mechanics simulations.

Honors Village Fellow **Spring 2015 – Spring 2017**
University Honors Program Raleigh, NC

- Led, in conjunction with faculty, lectures and events with students in discussion-based seminars to help students discover interdisciplinary connections amongst their various fields of study.
- Hosted University Honors Program official programs for students and faculty alike by setting up and leading student events in the University Honors Village.

Laboratory Research Assistant **Summer 2015 – Spring 2016**
NC State University Engineering Raleigh, NC

- Used LabView to create data analysis and interpretation tools for flame stabilization experiments using electric fields and heated coflow for applications in scramjet and ramjet igniters in the Reacting Flows Laboratory.
- Worked in the Ballistic Loading and Structural Testing (BLAST) lab maintaining and operating helium gas cannons and prepping/laser cutting Kevlar weaves with embedded sensors in close conjunction with graduate assistants.

ORGANIZATIONS

NC State Astronomy Club | Vice President **Spring 2015 – Spring 2017**

- Repaired, refurbished, and corrected optics on a variety of damaged and inoperable telescopes and lenses.
- Brought together students and community members to engage with astronomy and celestial phenomena.

ADDITIONAL SKILLS

- Extensive knowledge of **Java, MATLAB/Simulink, LabView,** & **Python** as well as **HTML/CSS/jQuery.**
- Experienced in solid modeling in **Solidworks** as well as finite element modeling in **ANSYS, Sierra and Chef.**

~ Currently Holds DOE-L CLEARANCE & US Citizen ~ | ~ References available upon request ~