Andre Gouws

agouws@utexas.edu
704-999-0054
US Citizen
andregouws.com

Education

MS | Mechanical Engineering
UT Austin | 2018-2020 (Expected)
- Research: Selective laser flash sintering of ceramics
- Advisor: Dr. Desiderio Kovar
- GPA: 3.8

BS | Mechanical Engineering
NC State University | 2018
- Minor in Physics
- Graduated *magna cum laude*
- GPA: 3.62

Technical Skills

Languages
Experienced
Python • HTML/CSS• Matlab
Proficient
C++ • SQL • Java

Software
LaTeX • LabVIEW • Simulink • Solidworks

General
Machine Learning • Finite Element Modeling• Data Analysis • UNIX Systems • CAD Modeling

Academic Projects

Drone Controller
Designed control system for quadcopter with disturbance rejection, w/ frequency response & root locus methods

Nuclear Reactor Probe
Light-detecting probe to determine power output of PULSTAR reactor by measuring cherenkov radiation output

Consumer Bike Products
Consumer facing design project to construct and test a spooled bike cable lock and U-bolt holder

Laminar Water Turret
Senior design project to modify existing laminar water jet from PENTAIR to allow for 90 degrees of controlled rotation

Experience

Los Alamos National Laboratory — Los Alamos, NM
Materials Characterization — Summer 2019
- Conducted selective laser flash sintering (SLFS) of aluminum nitride ceramics, allowing for the additive manufacturing of uranium nitride nuclear fuels
- Used electron microscopy techniques to analyze microstructure of ceramics in response to varying electrical and heating regimes

Oak Ridge National Laboratory — Oak Ridge, TN
Machine Learning — Summer 2018
- Developed machine learning tools to characterize mechanical properties of thin films using fragmentary data sets, reduced experimental test load by 90%
- Used artificial neural networks & decision tree forests to bridge relationship between electrical and mechanical properties of thin films

Sandia National Laboratories — Albuquerque, NM
Device Development & Rapid Prototyping — Summer 2016 - Spring 2018
- Created, verified & validated finite element models of hermetic seals and embedded fiber sensors
- Developed fiber bragg sensor for predicting multiaxial strains while embedded in host materials & created mathematical model for embedded strain prediction to be used in B61-12 tactical nuclear weapons
- Designed, prototyped and tested multi-material additively manufactured shock failsafe device to be deployed in high-consequence aircraft munitions

Two Phase Flow Group — NC State University
Data Visualization & High Performance Computing — Fall 2016 – Spring 2018
- Developed interactive visualizations and data postprocessing tools to diagnose bugs and identify malformed flow patterns in direct numerical flow simulations
- Optimized parallel processing regime to improve computational efficiency of high-performance multiphase flow simulations

Two Phase Flow Lab / NC State BLAST Lab — NC State University
Data Analysis & Composites Testing — Fall 2015 – Spring 2016
- Designed LabVIEW virtual instruments to conduct data collection of flame coflow experiments
- Setup and operated gas cannon impact testing of composites

Community

Graduate Teaching Assistant — Fall 2019 - Present
- Prepared lectures and projects for students to introduce them to engineering concepts such as energy, work, mechanics, and more
- Led seminar discussions to relate engineering concepts to student experiences

University Honors Fellow — Spring 2015 - Spring 2017
- Co-taught course on Diversity & Ecological Justice and led community events where students critically engaged with local issues in food distribution
- Organized cultural and research engagement events with students in honors community and with professors & lecturers in business and academia

VP of NC State Astronomy Club — Spring 2015 - Spring 2017
- Renovated local observatory and restored a collection of damaged/inoperable telescopes to working conditions
- Hosted community events where students, children, and adults could learn about celestial phenomena