Albert Gnadt albertgnadt.com gnadt@csail.mit.edu Boston, MA

Education

PhD Aeronautics & Astronautics • Massachusetts Institute of Technology • May 2022
- GPA 5.0/5.0, concentration in applied/scientific machine learning

M.S. Aeronautics & Astronautics • Massachusetts Institute of Technology • Feb 2018
- GPA 5.0/5.0, concentration in aerodynamics and air-breathing propulsion

B.S. Mechanical Engineering • University of Wisconsin–Madison • May 2015
- Certificate in Engineering Thermal Energy Systems
- GPA 3.98/4.0, graduated with highest distinction and honors in research
- Studied abroad at Budapest University of Technology and Economics

Work Experience

MIT CSAIL • Cambridge, MA • Research Specialist • Jun 2022 – present
- Research & development of the open-source MagNav.jl software package

SandboxAQ • Remote • Consultant • Jun 2022 – Sep 2022
- Advisor on airborne magnetic anomaly navigation (MagNav) & aeromagnetic compensation

MIT AeroAstro • Cambridge, MA • Research Assistant • Sep 2015 – May 2022
- Assessed the technical and environmental viability of all-electric commercial aircraft
- Led the propulsion analysis for a short takeoff and landing (STOL) aircraft design
- Conceptually designed a test section with a flexible wall for use in a subsonic wind tunnel
- Developed ML-based compensation models for airborne magnetic navigation (MagNav)
- Collaborated with researchers in various labs and universities, leading to 5 publications

Wright Electric • Remote • Consultant • Dec 2019 – Jan 2020
- Modeled fan performance and wrote mini-report, provided aircraft design feedback

Ford Motor Company • Dearborn, MI • Refrigerant Subsystem Intern • May 2014 – Aug 2014
- Reorganized and improved functionality of a thermodynamic analysis tool
- Developed an acceptance test procedure for a new refrigerant subsystem test chamber
- Analyzed A/C performance test data to determine causes of enhanced performance
- Communicated with external teams to answer questions about refrigerant subsystems

GE Healthcare • Milwaukee, WI • Bearing Development Intern • Jun 2013 – Aug 2013
- Performed weekly bearing coast down data analysis for multiple programs
- Completed a tolerance stack-up analysis between a rotor and a stator (included GD&T)
- Designed a bolted joint test to ensure constant bolt elongation (included solid modeling)
- Setup and monitored multiple ongoing bearing tests in rotational and eccentricity rigs

GE Healthcare • Madison, WI • Verification and Validation Co-op • May 2012 – Jan 2013
- Executed test protocols, completed session tests, and oversaw automated testing on software for anesthesia machines and critical care ventilators
- Won two monthly awards for efficiency and best risk remediation
- Leader in reporting critical care ventilator software issues

Skills

Data analysis and visualization, machine learning, statistics
Git, Julia, Python, MATLAB, Fortran, EES, SolidWorks, MS Office, OpenVSP, TASOPT, XFOIL
Private Pilot – airplane single-engine land

Activities

MIT Hyperloop II aerodynamics lead, GSC hometown presentation initiative participant
Edgerton House athletics chair, MIT DAPER (athletics) Advisory Board member
MIT Can Talk speaking competition (3rd), Siemens FutureMakers software competition (3rd)
MIT-KSC program, food pantry volunteer, Young Scientists of America mentor
Intramural basketball (captain), cornhole, football, hockey, soccer, ultimate, volleyball, water polo

Achievements

Passed Fundamentals of Engineering (mechanical) exam
Eagle Scout – designed and directed construction of a state park information kiosk
Wisconsin Dells High School valedictorian – GPA 4.0/4.0

Scholarships

Graduate Research Fellowship – National Science Foundation
Dodson Fellowship – Tau Beta Pi Engineering Honor Society
16 additional scholarships received during undergrad at UW–Madison

Undergrad Research

Frictional Energy Dissipation • Eriten Research Group • Sep 2014 – May 2015

- Altered phases between normal and tangential loadings and computed frictional energy dissipation and damping variations with dimensionless values
- Designed a physical test setup with multidimensional piezoelectric actuators and force measurements for future graduate students' friction experiments

Cycle-Simulations with Stochastic Operating Conditions • ERC • Jan 2014 – May 2014

- Developed and implemented a statistical combustion model into a cycle-simulation tool
- Utilized model to explain sources of cycle-to-cycle instability in high-efficiency, advanced Reactivity Controlled Compression Ignition (RCCI) engines
- Student Presentation Competition winner for ASME ICE Division

Low-Cost Inhaler Spacer • Polymer Engineering Center • May 2012 – Sep 2012

- Designed and prototyped a cost-effective inhaler attachment made from recycled parts
- Required research into ideal properties for inhaling aerosolized medicine

Undergrad Leadership

American Society of Mechanical Engineers • Sep 2011 – May 2015

- Banquet chair, secretary, academic chair, sophomore representative
- Design team member, designed and constructed a quadcopter
- 1st (2013) and 3rd (2014) most involved member
- Old Guard Presentation Competition award – 3rd place and best technical content

Pi Tau Sigma Mechanical Engineering Honor Society • Feb 2012 – May 2015

- Secretary, F.M. Young Award winner – given to outstanding graduating senior

Tau Beta Pi Engineering Honor Society • Apr 2012 – May 2015

- Corresponding secretary, volunteered at Pi Mile Run and UW–Madison Arboretum

Energy Hub • Sep 2013 – Nov 2014

- Organized and participated in UW–Madison Energy Hub Annual Conference, twice

Division of Information Technology • Oct 2013 – May 2014

- Student Advisory Committee – discussed DoIT services, products, and initiatives

Associate Students of Madison • Sep 2011 – Dec 2012

- Office of the Registrar Student Advisory Board – provided input on Registrar projects