Carey Whitehair-Conde

+1(386)747-5233 | cawhitehair@gmail.com | in/carey-whitehair

Education

Graduate Research in Aeronautics & Astronautics, University of Washington *Dec 2024*
No degree, passed Ph.D. qualifying exam
Relevant Coursework: Aeroelasticity | AI-Based Mobile Robotics | Convex Optimization | Nonlinear Controls | Space System Dynamics & Controls

M.S. in Mechanical Engineering, Pennsylvania State University *May 2018*
Relevant Coursework: Fluid Mechanics | Linear Systems Theory | Mechatronics | Vehicle Dynamics

B.S. in Mechanical Engineering, University of South Florida *Aug 2016*
Minor in **Physics**
Minor in **Spanish**
Relevant Coursework: Kinematics & Dynamics | Machine Design | Physics | Thermal Systems | Vibrations

Work Experience

Engineering Consultant, SDI Engineering Inc. *Nov 2023 – Present*
- Developing high fidelity aircraft landing gear models in Matlab and Simulink.
- Maintaining and improve existing proprietary simulation software to meet modern standards.
- Writing technical reports on on landing gear software development.
- Implementing PID control for aircraft simulations.

Graduate Research Assistant, University of Washington *Sept 2020 – Present*
- Researching nonlinear dynamics and controls of aquatic bio-inspired vehicles for environmental sensing.
- Researching nonlinear observability and estimation of rigid-bodies.
- Implementing Kalman filtering for estimation and control of various robotics systems.
- Applying various signal processing and filtering methods to IMU data.

Data Science Training Program Intern, Pacific Northwest National Laboratory *June 2022 – Sept 2022*
- Analyzed, large heterogeneous data sets using Python.
- Worked with Pandas and SQL-like databases for data extraction and loading.
- Wrote a technical report to advise on data analysis methods.

Optical Engineer II, North American Lighting Inc. *June 2018 – Sept 2020*
- Identified areas for improvement, fielded suggestions from coworkers and implemented these suggestions through VBA and C++ for Excel, PowerPoint, CATIA V5 and LucidShape.
- Designed and modeled lighting surfaces to meet customer specifications and industry regulations.
- Evaluated automotive lightning designs, through photometric lab testing and data analyses, to meet automotive regulations.
- Developed internal standards for documentation and code development which were implemented by management.
- Led training on lab procedures and design standards, resulting in the rapid integration of new team members.

Graduate Research Assistant, Pennsylvania State University *Aug 2016 – May 2018*
- Explored methods of fuel-consumption minimization through optimal control, contributing to ARPA-E NEXTCAR.
- Developed a web-scraping bot for data collection on engineering education in Python.
- Provided insights into graduate student attrition through several ASEE conference papers and a JEE journal article.
- Mentored students in qualitative research methods, culminating in the publication of conference papers.
- Acted as a teaching assistant in thermodynamics.

Skills

- **Design Technologies**: ANSYS | CATIA | Simulink | SolidWorks
- **Programming Languages**: C++ | MATLAB | Python | ROS
- **Developer Technologies**: CSS | Express | Git | HTML | JavaScript | MongoDB | Node.js | Visual Studio | VSCode
- **Additional Technologies**: Illustrator | Photoshop | SQL | VBA
- **Languages**: Spanish (intermediate)

Awards and Certifications

- CATIA V5 Surfacing
- CITI Export Compliance
- Udemy Web Development Bootcamp Course Completion

Publications

- E. Sundquist, **C. Whitehair**, and K. A. Morgansen, *Nonlinear Multi-Sensor Observability and Estimation of Rigid Body Inertial Parameters*, AIAA SCITECH Forum, 2024
- C. G. P. Berdanier, **C. Whitehair**, A. Kirn, D. Satterfield, *Analysis of social media forums to elicit narratives of graduate engineering student attrition*, J Eng Educ, 2020
- **C. Whitehair**, M. A. K. Denlinger, H. K. Fathy, *Pulse-and-glide driving with driveability constraints: A pontryagin approach*, AVEC, 2018
- **C. Whitehair**, C. G. P. Berdanier, *Capturing narratives of graduate engineering attrition through online forum mining*, ASEE Annual Conference and Exposition, 2018