

# Thomas Matthews

5114 29<sup>th</sup> Ave NE, Seattle, WA. 98105 | 415-446-8356 | tmm220@uw.edu

---

## Summary of Qualifications

---

- Experienced in designing, testing, and analyzing the aerodynamic, dynamic, and flight characteristics of aircraft. Experienced with data from wind tunnel tests and flight tests reduced through computers analysis and data analysis.
- Collaborated, guide, and lead others, while ensuring tasks are completed fully and thoroughly. This skill was developed through project management (e.g. as team lead of a flight dynamics group).
- Proficient in MATLAB and Simulink through three years of classwork and data analysis. Experience includes creating a mathematical dynamic model of an aircraft with dynamic derivatives found in wind tunnel tests.
- Experience with LabVIEW developed through a research position in which a data acquisition system was created to measure thousands of pressure values during a ram accelerator test firing.
- Strong Knowledge of Microsoft Office including Microsoft Excel, PowerPoint, and Word.

## Education

---

### UNIVERSITY OF WASHINGTON | SEATTLE, WA

EXPECTED JUNE 2015

Major: Aeronautics and Astronautics GPA: 3.27

Relevant Elective Courses:

- Aircraft Design—Design, analysis, test, and construction of a tailless thrust vectored supersonic aircraft.
- Aerospace Controls and Systems—Use of and analysis of control theory with feedback control systems.
- Flight Mechanics—Analysis of stability derivatives, flight characteristics, and performance.
- Flight Test Engineering—Conduct flight test reporting, flight test techniques, and analysis of instruments, power, and stability of a general aircraft. Preparation of test plans, test logs and test reports of flight tests.

### INSTITUT SUPÉRIEUR DE L'AÉRONAUTIQUE ET DE L'ESPACE | TOULOUSE, FRANCE

SUMMER 2014

Completed intensive courses in structures, combustion, propulsion, and European aeronautics regulations.

Produced technical reports on visits to European aerospace leaders, such as Airbus, and various cultural sites.

## Engineering Work Experience

---

### STABILITY & CONTROLS/FLIGHT DYNAMICS TEAM LEAD | UNIVERSITY OF WASHINGTON

JAN 2015-PRESENT

- Lead a group of students in designing, analyzing the controls characteristics and flight performance of a scaled down RUAV tailless supersonic business jet using stability theory and wind tunnel tests.
- Conduct wind tunnel/CFD analysis and flight tests of RUAV to analyze flight performance and controls characteristics to assist in design of UAV and influence the construction and final flights of aircraft.
- Produce state space model and simulation of aircraft in which winglet rudders and thrust vectoring replace the tail of the aircraft by producing sufficient yawing moments; as a result, these simulations are then compared to flight tests.

### WINGTIP VORTEX ENERGY EXTRACTOR RESEARCHER | UNIVERSITY OF WASHINGTON

APR 2014-JUNE 2014

- Designed and built wingtip vortex energy generator designed to reduce drag and produce power for onboard electronics that resulted in the production of a technical AIAA format paper; presented results to sixty person class.
- Conducted water tunnel visualization to visualize vortex formed on wingtip and completed wind tunnel tests of designs measuring reduction of drag due to generator.
- Produced CAD designs of generator and 3-D printed the generator endcap using a MakerBot 3-D printer.

## Related Research Experience

---

### COMPUTATIONAL FLUID DYNAMICS RESEARCHER | UNIVERSITY OF WASHINGTON

OCT 2014-DEC 2014

- Generated and manipulated flow fields around an aircraft using mesh and CFD simulations using Star-CCM+.
- Compared CFD simulations to wind tunnel testing to analyze accuracy of meshing and simulations.

### RESEARCH ASSISTANT | UNIVERSITY OF WASHINGTON RAM LABORATORY

JAN 2014-APR 2014

- Developed and engineered LabVIEW data acquisition system to detect, trigger, and measure pressures data points through transducers connected via Analog to digital converters.
- Assisted in the research regarding the Ram Accelerator including basic machining and technical work.

## Other Work Experience

---

### OFFICE ASSISTANT | TRAXLER AND TONG, INC.

JUNE 2013-SEPT 2014

- Worked in fast-paced risk management consulting firm using Microsoft Word, PowerPoint, and Excel.
- Performed clerical duties while gaining office management experience.

### HOST | THE MELTING POT

JUNE 2010-SEPT 2012

- Assisted managers in preparing the restaurant; Assigned 14 servers tables and planned seating schedules; Facilitated communication between managers and staff; maintained a positive relationship with patrons.
- Involved in customer focused and organizational duties; Assisted in managerial decision making.