

## Nathan Ho-Juin Yeung

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## University of California, Irvine

Ph.D., Aerospace Engineering in Fluid Dynamics-----2019 - Current

M.S., Mechanical Engineering in Controls and Dynamics -----2019 - 2022

B.S., Mechanical Engineering with Aerospace Specialization-----2015 - 2019

Honor Cum Laude

## Experience and Employment

### Henry Samueli School of Engineering UC Irvine, Irvine CA

#### Graduate Student Researcher (GSR) UCI Aircraft Systems Laboratory-----January 2020-Present

- Research on aircraft noise modeling of UAM, V/STOL, and other multi-rotor vehicles
- Community noise abatement through variations in both aircraft design and flight profile
- Specialization in propeller modeling and noise attenuation through geometric and operational based factors
- [Publications in several AIAA Conferences and Proceedings](#)

#### Teaching Assistant (ASE)-----September 2019-Present

**ENGRMAE 136 AERODYNAMICS:** Focus on potential flow, Kelvin vortex theorem, thin airfoil theory, and finite wing theory

**ENGRMAE 158 AIRCRAFT PERFORMANCE:** Flight performance analysis including range, endurance, climb and glide performance, and dynamic stability and control

**ENGRMAE 159 AIRCRAFT DESIGN:** Preliminary design of general aviation aircraft including the sizing of wings, fuselage and tail surfaces. Emphasis on weight distribution, layout, aerodynamics, propulsion and performance

**ENGRMAE 195 Propeller Theory:** Creation and use of a CFD program to analyze, design, and optimize propellers

### Lumitron Technologies, Irvine CA

#### Mechanical Design Engineer-----July 2020 - Present

- Experience with GD&T, utilizing PDM software, and the creation of engineering drawings
- General mechanical engineering, including the design of custom machined parts and tooling, and working with preformed material, such as 8020 extrusions and other modular parts

## Academic Honors and Activities

### AIAA UCI Design Build Fly, Irvine CA

#### Chief Engineer-----June 2018-June 2019

##### 10th place at the 2019 DBF AIAA competition hosted by Raytheon in Tucson, AZ

- Propulsion:** Optimized motor and propeller combination using flight test power data to meet short takeoff requirements
- Aerodynamics:** Iterated aircraft drag and stability using Pixhawk autopilot and telemetry to record airspeed, acceleration, and power to converge empirical results with analytical calculations.
- STOL:** Experimented using high lift devices including flaperons and vectored thrust.
- Vacuum Forming:** Experimented with HDPE, HIPS, and PC along with various heating methods to create lightweight vacuum formed fairings and fuselage shells.
- CNC:** Used hot wire foam cutter to create precise airfoils, control surfaces, and molds from XPS foam.

#### Team Lead-----August 2017 - June 2018

##### 7th place at the 2018 DBF AIAA competition hosted by Cessna in Wichita, KS

- FEA:** Designed, prototyped, and tested fuselage designs using FEA analysis validated failure mode analysis.
- Electronics:** Constructed and tested NiMH and Li-ion batteries using a spot welder. Set up RC aircraft by trimming servo motors, speed control programming, and radio receiver wiring.
- Technical Communication:** Wrote and presented design report at academic reviews to industry guests and faculty

#### Composite Manufacturing-----August 2016-June 2017

- Balsa Buildup:** Manufactured lightweight balsa structures including wings and fuselage fairings
- Laser Cutting:** Created and fabricated balsa, plywood, and foam parts using a laser cutting machine
- Composites:** Created fiberglass and carbon fiber parts using molds, such as aircraft control surfaces and wings

### The Henry Samueli School of Engineering, University of Irvine CA

#### Dean's Honor List Recipient:

Winter 2016 | Fall 2016 | Spring 2017 | Winter 2018 | Spring 2018 | Fall 2018 | Winter 2019 | Spring 2019

#### UCI Dean's Choice Award Recipient: AIAA Design Build Fly-----March 16, 2018 | March 15, 2019

- Outstanding leadership and presentation at the Engineering Winter Design Review

#### 4th Place 106 Mechanical Systems Robotics Design Competition-----June 2018

- 4th in the *Mechanics and System Design* competition involving autonomous robots and Arduino programming

## Relevant Skills

**Programming Languages:** MATLAB, FORTRAN, LaTeX, Python

**Design Tools:** CoventorWare, Tanner L-Edit, SolidWorks, XROTOR

**Analysis Tools:** SolidWorks Simulation, NASTRAN, PATRAN,  
CBA VI Power Analyzer

**Graphic Design:** CorelDRAW, Adobe Photoshop

**Data Analysis:** Microsoft Excel

**Fabrication:** UCI Welding Certified, UCI Machine  
Certified, Mach3 CNC