Miles Chan

Fluid Physics Modeling and Simulation · High Performance Computing · US Citizen

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Education

California Institute of Technology — *Pasadena, CA, USA*

PhD in Aerospace Engineering *3.6/4.0* — *March 2025*

Thesis: Reduced-order modeling of near-wall and roughness sublayer turbulence using resolvent analysis

Advisor: Dr. Beverley McKeon

MS in Aeronautics *3.6/4.0* — *June 2020*

Georgia Institute of Technology — *Atlanta, GA, USA*

BS in Mechanical Engineering *3.89/4.00* — *May 2019*

Skills

High Performance Computing	Linux, SLURM, parallel computing, Computational Fluid Dynamics (CharLES), version control (Git)
Data Visualization and Analysis	MATLAB, Python, ParaView, digital signal processing (DSP)
Aerospace Analysis Tools	XFOIL, AVL, FEMAP, NASTRAN
Computer Aided Design	SolidWorks, Autodesk Inventor, Fusion 360
Manufacturing	waterjet, laser cutter, mill, lathe, FDM & resin 3D printing, CNC router, soldering, hand tools
Mechatronics	Arduino, myDAQ

Work Experience

Fluid Dynamics Modeling and Computational Simulation Lead, Caltech and Stanford — *Pasadena, CA and Palo Alto, CA*

Graduate Research Assistant, Advisor: Dr. Beverley McKeon — *June 2020 - March 2025*

- Developed techniques for modeling and extracting reduced-order representations of near-wall and roughness sublayer turbulence from limited data, equation-driven methods, and results from computational fluid dynamics (CFD)
- Collaborated with CFD group at Queen's University to improve large eddy simulation using data-driven wall models
- Presented key research results at conferences

Stress Analyst, Honda Aircraft Company — *Greensboro, NC*

Intern — *August 2017 - December 2017*

- Developed Python software tools for automating and optimizing stress analysis tasks, including computation of structural allowables, point loads validation, and section design for structural elements

Flight Sciences Analyst, Honda Aircraft Company — *Greensboro, NC*

Intern — *January 2015 - May 2017*

- Developed a ground effect model which incorporates effects from flaps and landing gear deployment for predicting angle of attack limits for takeoff flight tests, and validated using wind tunnel measurements

Flight Controls Engineer, Honda Aircraft Company — *Greensboro, NC*

Intern — *May 2016 - August 2016*

- Improved existing fault isolation methods by creating decision trees, written procedures, and avionics readouts for flap actuation diagnostics
- Investigated and categorized production defects for root cause analysis and redesign

Honors & Awards

2023 **Finalist**, Caltech Three Minute Thesis (3MT) Competition — *Pasadena, CA*

- Graduate students are challenged to explain their research in an engaging and clear 3-minute talk for a non-specialist audience

2019 **Ig Nobel Physics Prize**, Improbable Research — *Cambridge, MA*

- For studying how, and why, wombats make cube-shaped feces

Leadership/Extracurricular Activities

Violin

- Stanford Philharmonia concertmaster / Organized rehearsals and coachings for chamber music group / 2022 Caltech Concerto Competition winner

Running & Cycling

- Organized group runs, swims, and rides with Stanford Cycling, Caltech Triathlon, and Caltech Alpine runners / 2:57 marathon, Ironman 70.3 finisher

Invention Studio Maker Space at Georgia Tech

- Taught students to use machine shop tools and prepare CAD for manufacturing / Responsible for maintenance, cleaning, and repairs on waterjet