

Miles Chan

THERMAL AND FLUID SYSTEM MODELING · SIMULATION · DATA ANALYSIS · HIGH PERFORMANCE COMPUTING · RAPID PROTOTYPING · US CITIZEN

Menlo Park, CA 94025

☎ 1(408)819-6352 | ✉ mjchan@caltech.edu | 🏠 milesjchan.com | 🌐 milesjchan

Education

California Institute of Technology

PHD IN AEROSPACE ENGINEERING 3.6/4.0

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

Georgia Institute of Technology

BS IN MECHANICAL ENGINEERING 3.89/4.00

Pasadena, CA, USA

April 2025

June 2020

Atlanta, GA, USA

May 2019

Skills

Fluids/Thermal Modeling

Data Analysis

System Modeling

High Performance Computing

Mechanical Design/CAD

Rapid Prototyping

Textbook/hand calculations, low- and high-fidelity CFD (DNS, LES, WMLES), meshing, roughness modeling, immersed boundary method (IBM), pre- and post-processing, XFOIL, AVL
MATLAB, Python, ParaView, digital signal processing (DSP), statistical testing
Simulink, flight dynamics/performance, control theory/algorithms, linear algebra, differential equations
Linux, C++, SLURM, parallel computing (MPI), Git, object-oriented programming
SolidWorks, Inventor, Fusion 360, CATIA, NX, hand calcs, FEA (ANSYS, COMSOL, FEMAP, NASTRAN)
waterjet, laser cutter, mill, lathe, FDM & resin 3D printing, CNC router, soldering, hand tools, Arduino

Work Experience

Turbulence Modeling Research Lead, Caltech and Stanford

Pasadena, CA and Palo Alto, CA

GRADUATE RESEARCH ASSISTANT, ADVISOR: DR. BEVERLEY MCKEON

June 2020 - March 2025

- Developed multifidelity data-driven and physics-based modeling approaches for predicting the turbulent flow response (drag) to engineering-relevant, multiscale roughness geometries while reducing computational cost in MATLAB.
- Implemented high-performance computing algorithms (MPI, C++, CUDA, pre- and post-processing techniques) to study parameter sensitivity, parallelize workflows, and improve performance.
- Synthesized and communicated key research results in written thesis, oral presentations at conferences, and papers in-progress.

Stress Analyst, Honda Aircraft Company

Greensboro, NC

INTERN

August 2017 - December 2017

- Developed and automated workflows for structures team tasks, including modeling structural allowables and point loads using Python, FEMAP, and NASTRAN.

Flight Sciences Analyst, Honda Aircraft Company

Greensboro, NC

INTERN

January 2015 - May 2017

- Developed physics-based analytical/empirical models for flight vehicle dynamics and aerodynamic quantities depending on deployment of control surface/landing gear/configuration to determine limits used by flight test engineers.
- Analyzed wind tunnel data for model validation and parameter identification using MATLAB.

Flight Controls Engineer, Honda Aircraft Company

Greensboro, NC

INTERN

May 2016 - August 2016

- Automated and streamlined existing fault isolation methods by creating decision trees, written procedures, and avionics readouts for flap actuation diagnostics for usage by customer-facing engineering.
- Investigated and categorized production defects to determine target areas for root cause analysis and redesign by the mechanical systems team.

Robotics Alliance Project Intern, NASA Ames Research Center

Mountain View, CA

INTERN

May 2015 - August 2015

- Responsible for the design and rapid prototyping of scoring system for drone racing competition. Used CAD, proximity sensors, Arduinos, and 3D printing to build sensor mounts, electronics packaging, and structural elements.

Community/Extracurricular Activities

Graduate Student Council Representative, Graduate Aerospace Laboratories at Caltech

- Organized student research seminars / Charles Babcock Award recipient for outstanding contributions to teaching efforts

Prototyping Instructor, Invention Studio Maker Space at Georgia Tech

- Taught students to use machine shop tools and prepare CAD with proper GD&T for manufacturing / Responsible for waterjet maintenance and cleaning

Caltech Triathlon, Caltech Alpine Club, Stanford Cycling, Caltech Music, Stanford Music

- Organized group runs, swims, and rides / 2:57 marathon, Ironman 70.3 finisher / Violinist active in orchestra, chamber music, and private studies