Mitchell S. Fowler

mitchellsf@live.com • (913) 235-6180 • 3443 Esplanade Ave, Apt 515, New Orleans, LA 70119

EDUCATION

Johns Hopkins University, Baltimore, MD
PhD, Mechanical Engineering (degree conferred May 2024) Spring 2018 – Fall 2023
MSE, Mechanical Engineering Spring 2022
Advisors: Charles Meneveau & Tamer Zaki
GPA: 3.97/4.00

Kansas State University, Manhattan, KS Fall 2014 – Fall 2017
BSc, Mechanical Engineering
GPA: 4.00/4.00

WORK EXPERIENCE

Naval Surface Warfare Center Carderock Division, West Bethesda, MD
Engineer December 2023 - present

- Develop reduced order fluid dynamics models for Navy submersible applications
- R&D projects involving academic collaborators
- Deliver technical reports for major research findings
- Coordinate project responsibilities with experimentalists, CFD analysts, and other NAVSEA personnel

Johns Hopkins University, Baltimore, MD
PhD Student Researcher – Wall modeling for Large Eddy Simulations January 2018 – November 2023

- Develop and test a turbulence Large Eddy Simulation (LES) wall model and incorporate into JHU's LESGO code. Wall model development focuses on incompressible, smooth-wall flows with non-equilibrium dynamics such as non-stationarity and/or large spatial gradients.

Teaching Assistant – Intermediate Fluid Mechanics Spring 2021

- Responsibilities: Design and grade homework assignments and COMSOL projects, and provide office hours to review material
- Course Description: Upper undergraduate/graduate level fluid mechanics course. Covers control volume relations, 1D compressible flow, normal shocks, pipe network design, turbomachinery.

Teaching Assistant – Fluid Dynamics 1 Fall 2020

- Responsibilities: Design and grade homework assignments, and provide office hours to review material
- Course Description: First graduate course in fluid dynamics. Main topics include conservation laws (integral and differential forms) & limiting behaviors of N-S equations such as potential flow, boundary layers, creeping flow, & lubrication theory

Data Annotation Tech, Remote
AI Trainer - Physics, Programming, & Math January 2025 – May 2025

- Write prompts for an AI model and assess its response.

Varsity Tutors, Overland Park, KS
Math and Physics Tutor Spring & Summer 2019

- Online and in-person math and physics tutor for many students with ages ranging from elementary school to high school.

Kansas State University, Manhattan, KS
Scholars Assisting Scholars (SAS) Tutor Fall 2016 – Fall 2017

- Held open lab tutoring hours, held exam review sessions, and attended lectures
    - Subjects: Dynamics (Fall 2016), Fluid Mechanics (Spring 2017), Calculus III (Fall 2017)

John Deere, Waterloo, IA
Product Engineering Intern – S450 (9.0 L) Base Engine Design (Engine Engineering, JDPS) Summer 2017

- Carried out many projects related to design, the product delivery process, and continuous improvement for John Deere engines

Product Engineering Intern – Performance Analysis (Engine Engineering, JDPS) Summer 2016

- Developed cranktrain/power cylinder model for engines within GT-Suite

- Provided direction and coordination in gathering crankshaft bearing wear data for JD engines

Taylor Forge Engineered Systems, Paola, KS — Summer 2015
Metallurgy Lab Intern
- Conducted and analyzed mechanical testing on part samples from pipeline products

Senior Design, Kansas State University — Spring 2017 – Fall 2017
Design Team Leader
- Developed cooling tower fill sheets for SPX Cooling Technologies
    - Design goal was to maximize heat transfer and minimize pressure losses through a fill sheet

RESEARCH INTERESTS

CFD simulation
Reduced order modeling – wall modeling, empirical/data-driven methods
Boundary layers – e.g. viscous-inviscid solvers

TECHNICAL SKILLS & SOFTWARE CAPABILITIES

Programming Languages – Matlab, Python, Fortran, Bash, C++
High performance computing resources – MARCC, Rockfish, Panoramix (local cluster), TACC
Large dataset usage – Johns Hopkins Turbulence Database (JHTDB)
CFD & CAD Software – COMSOL, SolidWorks, Autodesk Inventor, Creo
Version Control – Github
Computing platforms – Jupyter Notebook, CoCalc
Technical Writing – LaTEX, Overleaf
Additional Skills – MPI parallel computing experience

ACTIVITIES, AWARDS, & LEADERSHIP

JHU Mechanical Engineering Graduate Intramural Soccer Captain — Fall 2018 - Fall 2023
JHU Mechanical Engineering Departmental Fellowship — Spring 2018
Outstanding Senior in Mechanical Engineering — December 2017
Steel Ring, *Judging/Rules Committee* — Spring 2016 – Spring 2017
- Organize K-State's Engineering Open House

Tau Beta Pi Honor Society, *Corresponding Secretary, Engineering Futures* — Fall 2015 – Fall 2017
Pi Tau Sigma Honor Society, *Member* — Fall 2015 – Fall 2017
Human Powered Vehicle Design Team, *Member* — Spring 2015 – Spring 2016

CONFERENCES & RESEARCH PRESENTATIONS

Technical Research Programs Attended

American Physical Society Division of Fluid Dynamics (APS DFD)	Fall 2020 - 2024
CEAFM-Burgers-Symposium	Summer 2018, 2021, 2022
Center for Environmental & Applied Fluid Mechanics Seminar Series	Spring 2018 – Fall 2023
JHU Graduate Seminar in Fluid Mechanics	Spring 2018 – Fall 2023
JHU Mechanical Engineering Seminar	Spring 2018 – Fall 2023
The Burgers Program Turbulence Summer School	Summer 2018

Presentations

iTi Conference on Turbulence	Summer 2023
ONR Annual Program Review	Fall 2022
APS DFD	Fall 2021 - 2025
CEAFM-Burgers-Symposium	Summer 2022
Graduate Seminar in Fluid Mechanics	Spring 2021, Fall 2021, Fall 2022

PUBLICATIONS

Fowler, M., Zaki, T., & Meneveau, C. (2022). A Lagrangian relaxation towards equilibrium wall model for large eddy simulation. Journal of Fluid Mechanics, 934, A44. https://doi.org/10.1017/jfm.2021.1156

Fowler, M., Zaki, T., & Meneveau, C. (2023). A multi-timescale wall model for LES and applications to non-equilibrium channel flows. Journal of Fluid Mechanics, 974, A51. https://doi.org/10.1017/jfm.2023.585

REVIEWER FOR PEER-REVIEWED JOURNALS

Journal of Fluid Mechanics