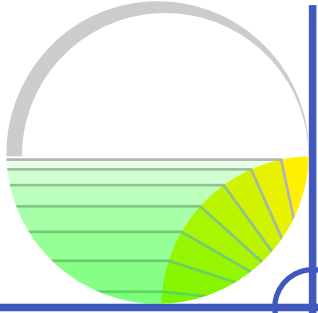

John R. Mahoney

Experienced and inventive physicist, applied-math researcher, data scientist, and educator. My interests include time-series, information theory, reacting flows, and health informatics.

INTERPERSONAL

Excellent listener
Flexible team-player
Effective mentor

CODING PROJECTS

Python & Physics course
Burning Invariant Manifolds
CMPy contributor
Simpson's Paradox
timesquare
résumé template

PROGRAMMING

Python: np, sp, mpl, pd
GUI / interactive
git, LaTeX, beamer, tikz
ipython, Jupyter, VS Code
MATLAB
Mac OS, UNIX

INTERESTS

Jazz saxophone and piano
Soccer, tennis, and hiking
Cooking delicious food!

mohnjahoney@gmail.com
(530) 601-0524
mohnjahoney.github.io

COMMUNICATION

Written: Wrote and co-authored over 25 papers published in high-impact physics journals, leading to advancement of theory in: time-series prediction, reacting fluid flows, and quantum resource theory; Important in securing co-authored grants from NSF ($350k) and Templeton Foundation ($440k).

Verbal: Designed and delivered over 35 research presentations in venues such as Singapore, Amsterdam, Paris, Budapest, and Sendai. Awarded best poster at "Mixing, Transport, and Coherent Structures Workshop" at the MFO. Our theories have been applied in dozens of other theoretical and experimental works. Taught, in lecture and small-group setting, over 1000 students.

Visual: Value clarity, simplicity and aesthetics in communication. New reacting flow diagram advances the canonical idea of phase portrait; applicable for heat transport and engine design. Promoted use of Venn diagrams for information theory; discovered new concepts of randomness and structure in time-series; impacted limits on algorithm design and computational architecture. Distilled complex relationships between sleep and blood sugar into rich and digestible graphic.

ANALYTICAL SKILLS

Research: Ability to assimilate and utilize knowledge from new areas. In my work on reacting fluids, I connected to a number of existing fields: invariant manifolds, FT Lyapunov exponents, ARD equation, catastrophe theory, vehicle path planning, differential geometry.

Critical Thinking: Sharp eye for details and definitions. Reframed an assumption in the literature to build a fruitful research avenue studying *crypticity* and *cryptic order*.

Data and Code Skilled scientific coder. Created Python pipeline for data on diabetes patients: clean, process, analyze (multiple pair lagged regression), visualize.

WORK EXPERIENCE

Fall 2020	Math Specialist: UC Davis
Summer 2020	Course Designer and Instructor: UC Davis
Oct 2019	Math Lecturer: Napa Valley College
Spring 2019	Physics Lecturer: UC Davis
Fall 2018	Math Lecturer: CSU Maritime
2017-2018	Consultant: Dept. Biomedical Informatics, Columbia University
2017-2018	Math Lecturer: UC Davis
2015-2017	Project Scientist: UC Davis
2010-2015	Postdoctoral Scholar: UC Merced

EDUCATION

Ph.D. in Physics, UC Davis, *Extensions of the Theory of Computational Mechanics*, advisor: James P. Crutchfield

B.S. in Physics and Mathematics, CSU Chico

Williams College for Physics, Mathematics and Music