

TRAVIS WHEELER
CURRICULUM VITAE
(updated June 2022)

Department of Pharmacy Practice & Science
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<http://www.wheelerlab.org>

RESEARCH INTERESTS

My research group designs algorithms, statistical methods, and software solutions for problems motivated by biological data. We are particularly focused on the annotation of biological sequences and the accompanying problem of searching for similar sequences within large-scale biological sequence databases, but our work also addresses infectious disease, soil microbiomes, transposable elements, and neuroscience.

Projects in our group range from statistical modeling of biological sequence families, to text indexing and bounded search algorithms, to low-level software optimization, to FPGAs, to Deep Neural Networks, to Natural Language Processing, to web services; from genomes, to proteins, to multiomics, to drug discovery, to animal tracking and behavior.

PROFESSIONAL EXPERIENCE

Associate Professor, Department of Pharmacy Practice & Science, University of Arizona	2022 – current
Associate Professor, Department of Computer Science, University of Montana	2019 – 2022
Assistant Professor, Department of Computer Science, University of Montana	2014 – 2019
Senior Research Scientist, HHMI Janelia Research Campus	2011 – 2014
Postdoctoral Associate, HHMI Janelia Research Campus (Sean Eddy)	2009 – 2011
Tree of Life Web Project (tolweb.org ; Lead Architect and Developer)	2000 – 2003
Intuit, Inc.	1995 – 2000

EDUCATION

Ph.D. Computer Science, University of Arizona, Tucson	2009
Efficient construction of accurate multiple alignments and large-scale phylogenies	
Advisors: John Kececioglu (Computer Science)	
Mike Sanderson (Evolutionary Biology)	
Minor in Evolutionary Biology	
Minor Advisor: David Maddison (Evolutionary Biology)	
M. S. Computer Science, University of Arizona, Tucson	2006
Advisor: John Kececioglu	
B. A. Ecology and Evolutionary Biology, University of Arizona, Tucson	1995
Minors in Anthropology and English	
Cum Laude, Phi Beta Kappa	

PUBLICATIONS / SOFTWARE, WEBSITES, AND DATABASES

See listings at: <http://wheelerlab.org/>

FUNDING

<u>Current</u>	
NIH R01 – “Development and Maintenance of RepeatMasker and RepeatModeler” (Multi-PI with Arian Smit and Robert Hubley at ISB)	Apr 2022 – Dec 2026
Total \$2.1M direct; Wheeler lab: \$490K direct. (R01HG002939)	
NSF – “Overcoming Combinatoric Complexity Problems in Computational Mass Spectrometry” \$269K direct (NSF 366357)	Apr 2022 – Dec 2026

NIH R01 supplement – Role of Glucose metabolism in Chondrocyte Mechanotransduction (PI = Ron June, Montana State University) Total \$150K direct; Wheeler lab: \$75K direct. (R01AR073964)	Oct 2021 – Sep 2022
DOE BER – “Machine learning approaches for integrating multi-omics data to expand microbiome annotation”. (Joint with Jason McDermott at PNNL) Total \$1.05M; Wheeler lab: \$735K direct. (DE-SC0021216)	Sep 2020 – Aug 2023
NIH R01 – “Machine learning approaches for improved accuracy and speed in sequence annotation”. \$950K direct. (R01GM132600)	Nov 2019 – Oct 2023
NIH U24 – “Dfam: sustainable growth, curation support, and improved quality for mobile element annotation” (Multi-PI with Arian Smit and Robert Hubley at ISB) Total \$1.9M direct; Wheeler lab: \$450K direct. (U24HG010136)	Jul 2018 – Jun 2023
NIH R15 – “Learning and Neural Coding of Social Expectations” (PI = Nathan Insel) Total \$300K direct; Wheeler lab: \$50K direct (R15MH117611)	Apr 2019 – Mar 2022
<u>Pending</u>	
NIH R01 – “Integrating Deep Learning Methods with Molecular Surface Properties to Improve Drug Screening” (Joint with Amitava Roy) Total \$1.4M direct; Wheeler lab: \$850K direct. (in review)	Nov 2022 – Oct 2027
NIH R01 – “EmCAST: Stabilizing Proteins and Tuning Dynamics with High Precision and Accuracy” (PI: Bruce Bowler) Total \$1.25M direct; Wheeler lab: \$100K direct. (in review)	Nov 2022 – Oct 2027
NIH R21 – “Building Knowledge About Alternatively-spliced Dual-Coding Exons”. \$275K direct (scored: 13 th percentile; awaiting funding decision)	Jul 2022 – Jun 2024

TEACHING

Computational Biology
 Data Structures and Algorithms
 Analysis of Algorithms
 Advanced Algorithms and Theory
 Computational Medicine
 Parallel Computing
 Introduction to Computer Science
 Introductory Computing for Biologists

SERVICE

CompbioAsia workshop – organizing committee, lead instructor	2022
NIH/DOE Petascale Computing Workshop and codeathon series – team lead	2021 - present
Dean’s Advisory Board – College of Humanities and Sciences, U. Montana.	2020 – 2021
Graduate Program Coordinator, Dept of Computer Science, U. Montana.	2018 – 2021
Assistant Chair, Dept of Computer Science, U. Montana.	2016 – 2018
UM General Education Committee, member	2016 – 2018
Reviewer: AICoB, ACM-BCB, Bioinformatics, BMC Bioinformatics, Database, Frontiers in Bioinformatics, GLBIO, IEEE-TCBB, MBE, Patterns, PLoS One, PLoS CompBio, Science. Grants: NSF, NIH, DOE, USGS, Genome Atlantic.	2011 – present
Board member, Phi Beta Kappa Association of Greater Tucson	2006 – 2009
Vice President, Phi Beta Kappa Association of Greater Tucson	2007 – 2008