

Daniel M. Gatti, Ph.D.

RELATED EXPERIENCE

Senior Computational Scientist	The Jackson Laboratory Bar Harbor, Maine Computational Sciences	2021 – present
Professor	Computer and Data Science College of the Atlantic Teach computer programming and data science courses. Advise students.	2018 – 2021
Bioinformatics Consultant	Cummings School of Veterinary Medicine Tufts University Tuberculosis research using Diversity Outbred mice.	2018 – 2021
Bioinformatics Analyst / Research Scientist	The Jackson Laboratory Bar Harbor, Maine Bioinformatics and Statistical Genetics High-throughput sequencing Genome-wide association studies	2010 – 2018
Postdoctoral Fellow	The Hamner Institutes for Health Sciences Research Triangle Park, North Carolina Drug-Induced Liver Injury	2010 –2010
Graduate Student Researcher	University of North Carolina Chapel Hill, North Carolina Transcriptional Regulation in BXD Mice	2005 –2010
Research Technician III	University of North Carolina Chapel Hill, North Carolina Environmental Contaminants in Drinking Water	2002 –2004

OTHER EXPERIENCE

Computing Consultant	University of North Carolina Chapel Hill, North Carolina Computer Helpdesk Support	2004 – 2005
Software Engineer I	North Carolina Supercomputing Center Environmental Programs Group Scientific Data Visualization	1998 –2002
Software Tester	Csoft International, LLC Wake Forest, NC Automation of Software Testing Pipelines	1997 –1998
Environmental Engineer	North Carolina Department of Environment & Natural Resources Raleigh, North Carolina Urban Air Pollution Sampling and Analysis	1996 – 1997
Environmental Specialist	Georgia Department of Natural Resources Atlanta, Georgia	1992 –1996

EDUCATION

Ph.D.	University of North Carolina , Chapel Hill, North Carolina <i>Environmental Sciences & Engineering</i> <i>Bioinformatics & Computational Biology (certificate)</i> <i>Biostatistics (minor)</i>	May 2010
M.S.	University of North Carolina , Chapel Hill, North Carolina <i>Environmental Sciences & Engineering</i> <i>Biostatistics (minor)</i>	August 2007
Certificate	North Carolina State University , Raleigh, North Carolina <i>Computer Programming</i>	May 1999
Bach.	Georgia Institute of Technology , Atlanta, Georgia <i>Chemical Engineering</i>	December 1992

SELECTED PUBLICATIONS

NCBI Bibliography (I have contributed to 54 publications):

<https://www.ncbi.nlm.nih.gov/myncbi/daniel.gatti.2/bibliography/public/>

Research papers

The Diversity Outbred Mouse Population Is an Improved Animal Model of Vaccination against Tuberculosis That Reflects Heterogeneity of Protection

Kurtz SL, Rossi AP, Beamer GL, **Gatti DM**, Kramnik I, Elkins KL.
mSphere. 2020 Apr 15;5(2). [PMID: 32295871](#)

Cleaning Genotype Data from Diversity Outbred Mice

Broman KW, **Gatti DM**, Svenson KL, Sen S, Churchill GA.
G3 (Bethesda). 2019 May 7;9(5):1571-1579. [PMID: 30877082](#)

Genetic Drivers of Pancreatic Islet Function

Keller MP, **Gatti DM**, Schueler KL, Rabaglia ME, Stapleton DS, Simecek P, Vincent M, Allen S, Broman AT, Bacher R, Kendzierski C, Broman KW, Yandell BS, Churchill GA, Attie AD.
Genetics. 2018 May;209(1):335-356. [PMID: 2956765](#)

Genetic background influences susceptibility to chemotherapy-induced hematotoxicity

Gatti DM, Weber SN, Goodwin NC, Lammert F, Churchill GA. Pharmacogenomics J. 2017 Jun 13. [PMID: 28607509](#)

Lung necrosis and neutrophils reflect common pathways of susceptibility to Mycobacterium tuberculosis in genetically diverse, immune-competent mice

Niazi MK, Dhulekar N, Schmidt D, Major S, Cooper R, Abeijon C, **Gatti DM**, Kramnik I, Yener B, Gurcan M, Beamer G.

Dis Model Mech. 2015 Sep;8(9):1141-53. [PMID: 26204894](#)

Diversity Outbred Mice Identify Population-Based Exposure Thresholds and Genetic Factors that Influence Benzene-Induced Genotoxicity

French JE, **Gatti DM**, Morgan DL, Kissling GE, Shockley KR, Knudsen GA, Shepard KG, Price HC, King D, Witt KL, Pedersen LC, Munger SC, Svenson KL, Churchill GA. Environ Health Perspect. 2015 Mar;123(3):237-45. [PMCID: 25376053](#)

Software Packages

R/qtl2: Software for Mapping Quantitative Trait Loci with High-Dimensional Data and Multiparent Populations.

Broman KW, **Gatti DM**, Simecek P, Furlotte NA, Prins P, Sen S, Yandell BS, Churchill GA. Genetics. 2019 Feb;211(2):495-502. [PMID: 30591514](#)

Quantitative trait locus mapping methods for diversity outbred mice

Gatti DM, Svenson KL, Shabalin A, Wu LY, Valdar W, Simecek P, Goodwin N, Cheng R, Pomp D, Palmer A, Chesler EJ, Broman KW, Churchill GA. G3 (Bethesda). 2014 Sep 18;4(9):1623-33. [PMCID: 25237114](#)

SAFEGUI: resampling-based tests of categorical significance in gene expression data made easy

Gatti DM, Sypa M, Rusyn I, Wright FA, Barry WT. Bioinformatics. 2009 Feb 15;25(4):541-2. [PMCID: 19098030](#)

FastMap: fast eQTL mapping in homozygous populations

Gatti DM, Shabalin AA, Lam TC, Wright FA, Rusyn I, Nobel AB. Bioinformatics. 2009 Feb 15;25(4):482-9. [PMCID: 19091771](#)

Review articles

Toxicogenetics: population-based testing of drug and chemical safety in mouse models.

Rusyn I, **Gatti DM**, Wiltshire T, Kleeberger SR, Threadgill DW. Pharmacogenomics. 2010 Aug;11(8):1127-36. [PMCID: 20704464](#)

Book chapters

QTL Mapping and Identification of Candidate Genes in DO Mice: A Use Case Model Derived from a Benzene Toxicity Experiment.

Gatti D, French JE, Schughart K. Methods Mol Biol. 2017;1488:265-281. [PMID: 27933529](#)

TEACHING EXPERIENCE

Software Carpentry Instructor

Data Science I

Data Science II

Programming with Python I

Bioinformatics

Sensors, Controllers and Robots

Plagues, Panic & Prevention: Natural History of Infectious Diseases

Calling BS: Critical Data Literacy

The Bicycle: History, Science and Policy

SKILLS

Bioinformatics, Biostatistics, Genetics, Toxicology, R, Python, Java, C, Linux, Bioconductor, HPC Clusters, Cloud Computing, Software Engineering, Data Science, Big Data, Reproducible Research, Algorithm Development.

Github Repository: <https://github.com/dmgatti>

SCIENCE OUTREACH

The Dogs of MDI: In conjunction with the Jesup Library on Mount Desert Island, I collected DNA from one hundred local dogs, genotyped them at ~170,000 markers, and used a Hidden Markov model to reconstruct their ancestral haplotypes. I present several talks about dog genetics and evolution at the Jesup Library and presented each dog owner with a report on their dog's ancestry. I enjoyed finding ways to communicate the fairly complex science to a lay audience.

PREVIOUS FUNDING

Funding Agency: Davis Family Foundation
Title: Engaging Students in STEM Through Robotics and Microcontrollers
PI: Daniel Gatti
Period: 2019-10-01 to 2021-09-30
Amount: \$25,000

Funding Agency: Maine Space Grant Consortium
Title: Engaging Students in STEM Activities through Robotics and Microcontrollers
PI: Daniel Gatti
Period: 2019-11-01 to 2021-06-20
Amount: \$23,000

Funding Agency: Food and Drug Administration
Title: The Diversity Outbred: A Tool to Improve Preclinical Safety Testing and Pharmacogenomic Analysis
PI: Igor Koturbash, Univ. of Arkansas
Co-PI: Daniel Gatti
Period: 2014-09-30 to 2017-09-29
Amount: 10% effort

Funding Agency: The Burroughs Wellcome Fund
Title: Advancing Regulatory Science through Regulatory Pharmacogenomics
PI: Alison Harrill, Univ. of Arkansas
Co-PI: Daniel Gatti
Period: 2013-09-01 to 2016-08-31
Amount: 5% effort