John Christian Gaby

Research Microbiologist

Resume Last Updated:
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Gainesville, Florida, USA

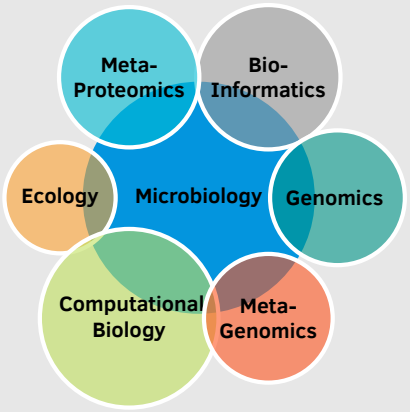
chrisgaby.github.io

/in/john-gaby-56525410b/

chrisgaby

Knowledge

Domains



About Me

John Christian Gaby is a Research Microbiologist with the Genomics and Bioinformatics Research Unit (GBRU) of the United States Department of Agriculture (USDA) Agricultural Research Service (ARS). His research interests include microbial ecology, biological nitrogen fixation, the nitrogen cycle, biogas production, genomics, metagenomics, metaproteomics, bioinformatics, and computational biology. He currently works on the development of machine learning models to predict prokaryotic phenotype from genome sequence data.

Education

Ph.D., Microbiology
Minors: Genomics and Ecology
Cornell University
2013 Ithaca, NY

B.S., Biology
The University of Tennessee
2002 Knoxville, TN

Skills

Programming
Python & Jupyter
Conda
R & RStudio
SQL
UNIX Shell
Docker
NextFlow
LaTeX
Markdown
Git & GitHub

Bioinformatics
HPC and Cloud
Slurm, GCP
Homology Search
BLAST, Diamond, HMMer
Read Mapping
BowTie, BWA
Assembly
SPAdes, MegaHIT
Genome Binning
MaxBin, metaBAT
metaGenomics
CheckM, GTDB-Tk

Gene Finding
Prodigal, GeneMark
Gene Annotation
InterProScan, dbCAN, Pfam
Databases
NCBI Assembly, Genbank, SRA, *nifH*, Silva rRNA
Similarity Search
MASH & fastANI
metaProteomics
MaxQuant,Perseus

Methodologies
Machine Learning
Ecological Stats.
DNA Extraction
Amplicon Seq.
Nanopore Seq.
Sangar Seq.
PCR & qPCR
Acetylene Reduc.
Enrichment
Isolation
Nitrogen Analyses
Soil Analyses
Field Studies

Experience

2020 - Present — **Research Microbiologist Research Associate** — USDA ARS GBRU
Machine Learning Prediction using Genomic Data

2016 - 2020 — **Postdoctoral Researcher** — The Norwegian University of Life Sciences (NMBU)
Functional Multi-omics of Biogas Reactors and Gut Microbiomes

2013 - 2016 — **Postdoctoral Researcher** — The Georgia Institute of Technology
Nitrogen Fixation in Terrestrial and Marine Ecosystems

2011 - 2012 — **Fulbright United States Student Fellow** — Corporacion Corpogen
Nitrogen Cycling in the Colombian Paramo

2005 - 2011 — **Graduate Researcher** — Cornell University
The Diversity and Ecology of Nitrogen-fixing Bacteria

2003 - 2005 — **Volunteer** — United States Peace Corps, Niger, West Africa
Sahelian Agriculture and Natural Resources Management

2002 — **Research Assistant** — The University of Tennessee
Mycobacterium ulcerans

2001 — **HHMI Summer Research Fellow** — University of Pittsburgh
Genetics of Alternative Cobamide Utilization in *Salmonella*

2000 — **DOE Energy Research Undergraduate Laboratory Fellow** — ORNL
Fluorescence-based Biosensor Development

Publications, 5 Selected of 17 Total

941 citations according to my Google Scholar page as of August 28, 2021
Peer reviewed articles: 6 first author, 9 co-author, 1 corresponding author

[1] L. Michalak, J. C. **Gaby**, L. Lagos, S. L. La Rosa, T. R. Hvidsten, C. Tétard-Jones, W. G. Willats, N. Terrapon, V. Lombard, B. Henrissat, J. Dröge, M. Ø. Arntzen, L. H. Hagen, M. Øverland, P. B. Pope, and B. Westereng. Microbiota-directed fibre activates both targeted and secondary metabolic shifts in the distal gut. *Nature Communications*, 11(1), 2020.

[2] J. C. **Gaby**, M. Zamanzadeh, and S. J. Horn. The effect of temperature and retention time on methane production and microbial community composition in staged anaerobic digesters fed with food waste. *Biotechnology for Biofuels*, 10(1):302, 2017.

[3] J. C. **Gaby** and D. H. Buckley. A comprehensive aligned *nifH* gene database: A multipurpose tool for studies of nitrogen-fixing bacteria. *Database: The Journal of Biological Databases and Curation*, 2014:bau001, 2014.

[4] J. C. **Gaby** and D. H. Buckley. A comprehensive evaluation of PCR primers to amplify the *nifH* gene of nitrogenase. *PLoS ONE*, 7(7):e42149, 2012.

[5] J. C. **Gaby** and D. H. Buckley. A global census of nitrogenase diversity. *Environmental Microbiology*, 13(7):1790–1799, 2011.