Kimberly A. Dill-McFarland, PhD

Bioinformatician
Division of Allergy and Infectious Diseases, University of Washington
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Microbiology PhD with 9+ years experience in applying data science and statistics to biological problems. Skilled leader of teams with diverse backgrounds and varied training. Expertise in next-generation sequencing from experimental design to publication. Effective communicator with formal teaching experience. Specific skills include:

Data

Transcriptomics: RNA-seq
Genetics: MegaEX, Omni, whole exome
Epigenetics: ATAC-seq, bisulfite seq
Proteomics: MS/MS
Microbiome: 16S, 18S, ITS, meta-transcriptomics

Software

AWS
Git, GitHub
R, Rmd, Shiny
samtools, bedtools
STAR, BWA, bowtie
PLINK, vcftools
mothur, QIIME

Statistics

Linear, PLS, LASSO, latent regression
Un/supervised machine learning
PCA, NMDS, tSNE
Sparse data imputation
Data visualization

EXPERIENCE

07/2019 - present **Bioinformatician**, Allergy and Infectious Diseases, U. of Washington

- Analyze human transcriptomic, epigenetic, and genetic datasets including quality assessment, and statistical tests
- Develop novel pipelines for integrated 'omics analysis
- Lead a team of 3 core bioinformaticians as well as mentor post-docs and students in related groups
- Administrator AWS Organization (6 users)

04/2021 - present **Genomic data specialist,** San Mateo County Public Health Lab (part-time)

- Genome assembly, variant tracking, and outbreak assessment of COVID-19 clinical samples

08/2017 - 06/2019 **Post-doctoral research fellow**, Microbiology & Immunology, U. of British Columbia

- Directed Experiential Data Science for Undergraduate Cross-disciplinary Education (EDUCE) including a team of 3 teaching assistants
- Designed and implemented data science curriculum in 7 courses
- ECOSCOPE fellow coordinating and teaching data science workshops for industry and academic partners

07/2016 - 06/2017 **Post-doctoral research associate**, Bacteriology/Sociology, U. of Wisconsin-Madison

- Investigated relationships between the human gut microbiome and long-term behaviors in the Wisconsin Longitudinal Study (WLS)
- Navigated large, longitudinal survey databases

08/2011 - 06/2016 **Graduate research assistant**, Bacteriology, U. of Wisconsin-Madison

- Designed and implemented amplicon sequence analysis pipelines
- Collaborated effectively with diverse international researchers resulting in first and corresponding author publications
- Mentored high school, undergraduate, and graduate students

EDUCATION

2011-2016 **Ph.D. Microbiology**, U. of Wisconsin-Madison, Madison, WI. GPA: 4.00

2007-2011 **B.S. Molecular and cellular biology**, Minor mathematics, U. of Puget Sound, Tacoma, WA. GPA: 3.84

SELECT PUBLICATIONS

Full publication list

Dill-McFarland KA, König SG, Mazel F, Oliver DC, McEwen LM, Hong KY, Hallam SJ. 2021. An integrated, modular approach to data science education in microbiology. PLoS Comput Biol In press. doi: 10.1371/journal.pcbi.1008661

Dill-McFarland KA, Tang Z, Kemis JH, Kerby RL, Chen G, Palloni A, Sorenson T, Rey FE†, Herd P†. 2019. Close social relationships correlate with human gut microbiota composition. Sci Rep 9: 703. doi: 10.1038/s41598-018-37298-9

Dill-McFarland KA, Weimer PJ, Breaker JD, Suen G. 2018. Diet influences early microbiota development in dairy calves without long-term impacts on milk production. Appl Environ Microbiol 85(2): e02141-18. doi: 10.1128/AEM.02141-18

CURRENT PROJECTS

Dill-McFarland KA, Schwartz JT, Fulkerson PC, Zhao H, Shao B, Altman MC, Gill MA. Eosinophil-mediated suppression and Anti-IL-5 enhancement of plasmacytoid dendritic cell interferon responses in asthma. J Allergy Clin Immunol. In revision

Dill-McFarland KA, Peterson G, Nguyen F, Penchek P, Stein CM, Mayanja-Kizza H, Boom WH, Hawn TR. Epigenetic programming of lipoprotein pathways associated with resistance to tuberculosis. In prep

Dill-McFarland KA, Busse W, Altman MC, Rosenkranz M. Links between allergen-induced gene expression in the lung and neurological responses in asthma. In prep

NOTABLE ACCOMPLISHMENTS

2017, 2018, 2019 Session convener American Society for Microbiology (ASM) Microbe meeting

2016 Microbiome Digest's Best Microbiome Paper

2016 Sigrid Leirmo Memorial Award for peer mentorship and support

2009, 2010 American Society for Microbiology Undergraduate Research Fellow

References available upon request