DYLAN JAMES TAYLOR

Department of Biology
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EDUCATION

8/19 – Current **PHD candidate in Biological Sciences**
Program in Cellular, Molecular, Developmental Biology, and Biophysics
Johns Hopkins University, Baltimore, MD
Advisor: Rajiv McCoy

8/14 – 12/18 **BS in Biology – Microbiology**
Minors in Physics and Astronomy
University of Maryland, College Park, MD
Minors: Astronomy and Physics

HONORS AND AWARDS

2021 NSF Graduate Research Fellowship Program Honorable Mention
2021 Johns Hopkins University Center for Educational Resources Technology Fellowship Grant Recipient
2021 Johns Hopkins University Department of Biology Victor G. Corces Teaching Award
2018 Student Speaker for College of Computer, Mathematical, and Natural Sciences Winter 2018 Commencement
2018 Sigma Alpha Omicron Honors Society for excellence in Microbiology
2016 Integrated Life Sciences Honors College Citation
2015 Gold Medal and Nomination for Best-in-Track at iGEM 2015
2014 University of Maryland Dean's Scholarship

RESEARCH EXPERIENCE

3/20 – Current *Graduate Student*, **Johns Hopkins University**, Baltimore, MD
Extending genetic association studies to diverse human cohorts using the Ancestral Recombination Graph (ARG) to improve mapping quality and cross-population applicability. Investigating the link between evolutionary and demographic history and variations in gene-expression patterns across populations

1/20 – 3/20 *Graduate Rotation Student*, **Johns Hopkins University**, Baltimore, MD
Advisor: William Ludington
Investigated genetic basis for effective colonization of the *Drosophila melanogaster* gut by *Lactobacillus plantarum*; characterized domain differences in a Mucin-binding gene among *L. plantarum* strains

11/19 – 1/20 *Graduate Rotation Student*, **Johns Hopkins University**, Baltimore, MD
Advisor: Jocelyne DiRuggiero
Investigated shared sequence-structural motifs in archaeal sRNAs to elucidate potential Argonaute-like binding partner and identify mRNA binding partners

9/19 – 11/19 *Graduate Rotation Student*, **Johns Hopkins University**, Baltimore, MD
Advisor: James Taylor
Built a convolutional neural network capable of accurately predicting chromatin compartmentalization from pre-defined epigenetic states across multiple mouse hematopoietic cell types

8/18 – 8/19 *Research Assistant*, **University of Maryland**, College Park, MD
Advisor: Mihai Pop
Developed a computational algorithm to generate sets of representative oligomers from metagenomic marker genes to design a high-resolution metagenomic profiling assay

5/17 – 8/17 *Undergraduate Research Assistant*, **University of Florida**, Gainesville, FL
Advisors: Robert Ferl and Anna-Lisa Paul
Developed qualitative imaging tools to monitor plant mesophyll health using Normalized Differential Vegetation Index for use in growing crops on the International Space Station. Created predictive MATLAB model of leaf temperature in changing gravity environments to forecast impacts on leaf temperature as spacecraft move into and out of orbit

1/15 – 12/15 *iGEM Undergraduate Team Member*, **University of Maryland**, College Park, MD
Competed in the 2015 International Genetically Engineered Machine (iGEM) competition. As part of a student-led team, designed a novel plasmid-maintenance system independent of antibiotic resistance and demonstrated system efficacy in maintaining plasmids over extended periods of time. Designed and constructed a cheap thermocycler using a hairdryer and soda can that successfully amplified DNA

TEACHING EXPERIENCE

8/20 – Current *Teaching Assistant*, **Johns Hopkins University**, Baltimore, MD
Quantitative Biology Lab (Graduate Level)
Quantitative Biology Bootcamp (Graduate Level)
Developmental Genetics Lab (Undergraduate Level)

10/21 *Guest Lecturer*, **Johns Hopkins University**, Baltimore, MD
Quantitative Biology Lab (Graduate Level)

1/19 – 5/19 *Instructor*, **University of Maryland**, College Park, MD
Trampoline (Undergraduate Level)

PRESENTATIONS

2020 Annual Meeting of the American Society of Human Genetics, *Online*
2020 International Society for Computational Biology 28th Conference on Intelligent Systems for Molecular Biology, *Online*
2017 33rd Annual Meeting of the American Society for Gravitational and Space Research, *Seattle, WA*
2015 iGEM Giant Jamboree, *Boston, MA*

PUBLICATIONS

2021 Aganezov, S., Yan, S. M., Soto, D. C., …, **Taylor, D. J.** (7/33), …, Schatz, M. C. (2021). A complete reference genome improves analysis of human genetic variation. *Science*, in press. Doi: 10.1101/2021.07.12.452063

2021 Yan, S. M., Sherman, R. M., **Taylor, D. J.**, Nair, D. R., Bortvin, A. N., Schatz, M. C., & McCoy, R. C. (2021). Local adaptation and archaic introgression shape global diversity at human structural variant loci. *ELife*, 10, e67615. Doi: 10.7554/eLife.67615

2019 Sakowski, E., Uritskiy, G., Cooper, R., …, **Taylor, D. J.** (28/30), …, Preheim, S. P. (2019). Current state of and future opportunities for prediction in microbiome research: Report from the mid-atlantic microbiome meet-up in Baltimore on 9 January, 2019. *MSystems*, 4(5), e00392-19. Doi: 10.1128/mSystems.00392-19

2018 Beisel, N. S., Callaham, J. B., Sng, N. J., **Taylor, D. J.**, Paul, A. L., & Ferl, R. J. (2018). Utilization of single-image normalized difference vegetation index (SI-NDVI) for early plant stress detection. *Applications in Plant Sciences*, 6(10), e01186. Doi: 10.1002/aps3.1186