George I. Mias, PhD
Curriculum Vitae

Division Chief, Systems Biology, Institute for Quantitative Health Science and Engineering,
Associate Professor with Tenure, Department of Biochemistry and Molecular Biology,
Adjunct Professor, Department of Physics and Astronomy,
Adjunct Professor, Department of Pediatrics and Human Development,
Michigan State University

1. EDUCATION

► **Yale University**, New Haven, CT 065020
- Ph.D. in Physics, 2007 (4.0)
- M.Phil in Physics, 2003
- B.S. & M.S. in Physics, 1997-2001 (3.81), *Magna Cum Laude with Distinction in Physics.*

2. EMPLOYMENT

► **Michigan State University,** East Lansing, MI 48824
- *2020-Present* - Associate Professor with Tenure, Department of Biochemistry and Molecular Biology;
  Adjunct Professor, Physics and Astronomy;
  Adjunct Professor, Pediatrics and Human Development
- *2016-Present* - Division Chief, Systems Biology, Institute for Quantitative Health Science and Engineering (IQHSE)
- *2014-2020* - Assistant Professor, Biochemistry and Molecular Biology;
  Physics and Astronomy (Adjunct);
  Pediatrics and Human Development (Adjunct)

► **Stanford University**, School of Medicine, Stanford, CA 94305
- *2009-2014* - Postdoctoral Research Fellow in Genetics, Snyder Laboratory, Department of Genetics

► **Yale University**, New Haven, CT 06520
- *2008-2009* - Lecturer/Assistant in Instruction Physics, Physics Department
- *2008-2009* - Math and Science Tutor, Yale College
- *Summer 2008* - Summer Instructor, Yale Summer School
- *2001-2007* - Graduate Research Assistant, Yale Physics Department
- *Summer 2001* - Summer Instructor, Yale Summer School

► **Other Professional Activities**
- *2018-2022* - Consulting for Colgate Palmolive North America

3. PERSONAL STATEMENT

My research interests lie in systems medicine and dynamics. I lead an interdisciplinary team that focuses on developing theory and frameworks for studying dynamics, the application of longitudinal monitoring to evaluate and interpret microscopic molecular signatures (omics) and macroscopic physiological measurements, and integrate these to identify collective temporal trends that reflect the physiological state of a person. **Our long-term vision is to develop innovative dynamics methods, bring individualized longitudinal medicine to the clinic for all, and automate the monitoring and evaluation of active personnel (astronauts), as well as improve diagnostics in populations with restricted access to healthcare.**

To achieve our goals, we are developing novel theory and frameworks for dynamics, including utilizing artificial intelligence and machine learning (AI/ML) for Big Data and molecular multiomics data. We investigate dynamics in health (during development, aging, immune responses, and cancer and neurodegenerative disorders), as well as changing conditions (space travel). Finally, we focus experimentally on multi-omics integration for monitoring individuals using non-invasive saliva diagnostics in clinical trials.

4. HONORS, AWARDS AND SCHOLARSHIPS

▶ Jean P. Schultz Endowed Biomedical Research Fund Faculty Awardee, MSU (2017)

▶ NIH Pathway to Independence (PI) award, Career development award funded by National Human Genome Research Institute (NHGRI), K99/R00 (2013 - 2017),

▶ Stanford Genome Training Program Fellowship (2010-2011)

▶ J.W. Gibbs Fellowship (2001-2003)

▶ DeForest Pioneers Award for Distinguished Creative Achievement in Physics (May 2001)

▶ Phi Beta Kappa (elected member in the Fall 2000)

▶ Yale Physics Department Nominee for American Physical Society LeRoy Apker Award (2000)

▶ Financial support provided in part by (Yale University, New Haven, CT 06520):
  - *2001-2003*   - John Sloane Fellowship
  - *2000-2001*   - Wellemeyer Scholarship
  - *1999-2000*   - George W. Darr Memorial Scholarship
  - *1999-2000*   - Wellemeyer Scholarship
  - *1998-1999*   - Henry M. Nodelman Scholarship
  - *1998-1999*   - Wellemeyer Scholarship

5. RESEARCH

RESEARCH SUPPORT

▶ **Current**
  - 1 R37 CA269076   Bin Gu (PI) [**George I. Mias(Co-I)**] 01/05/2023 - 12/31/2027
    Title: Developing a clinically-relevant genetically engineered mouse model for Nut carcinoma (R37)

Funding Agency: NCI
Role: **Co-Investigator** *Total Costs:* $2,145,235 (Mias allocation $\sim$ $500,000)

▶ **Completed**
- Project Number T0412 **George I. Mias** (PI) 01/01/2019-12/31/2020
Title: Integrative Personalized Omics Profiling Next Steps: Detection and Classification of Deviations from Wellness
Funding Agency: Translational Research Institute for Space Health, under NASA Cooperative Agreement NNX16AO69A
Role: **Principal Investigator** *Total Costs:* $518,765

- Jean P. Schultz Endowed Biomedical Research Fund, **George I. Mias** (PI) 2017 - 2018
Role: **Principal Investigator**

- 1 R00 HG007065-03 **George I. Mias** (PI) 03/15/2014 - 02/28/2017
Title: Integrative Dynamic Omics Profiling: A First Step Towards Personalized Medicine Pathway to Independence Award (R00)
Funding Agency: NHGRI
Role: **Principal Investigator** *Total Costs:* $745,330

- 1 K99 HG007065-01 **George I. Mias** (PI) 03/14/2013 - 02/28/2014
Title: Integrative Dynamic Omics Profiling: A First Step Towards Personalized Medicine Pathway to Independence Award (K99)
Funding Agency: NHGRI
Role: **Principal Investigator** *Total Costs:* $90,000

- 5 T32 HG000044-14 Michael Snyder (PI) 01/01/2011 - 09/30/2011
Title: Institutional Training Grant in Genome Science (Stanford University); This Grant supports the Stanford Genome Training Program (SGTP)
Role: **Trainee**

- 5 T32 HG000044-13 Arend Sidow (PI) 01/01/2010 - 12/31/2010
Title: Institutional Training Grant in Genome Science (Stanford University); This Grant supports the Stanford Genome Training Program (SGTP)
Role: **Trainee**

RESEARCH ACTIVITIES

▶ **G. Mias Lab,** Department of Biochemistry and Molecular Biology; Institute for Quantitative Health Science and Engineering, Michigan State University, East Lansing, MI 48824
http://georgemias.org
- *2014-Present* - Adverse event detection in astronauts on deep space missions
  - Personalized medicine applications to immunologic disorders
  - Integrative omics analysis of drug effects in cells
  - Transcriptomics/proteomics/metabolomics (asthma/leukemia)
  - Aging and disease
  - Dynamic network analysis
  - Cancer (leukemias; NUT carcinoma)
  - Autism spectrum disorder (ASD)
  - Complex systems and critical phenomena
  - Sequencing: Statistical noise characterization of genomic sequences and homology, new mapping methodology and quality control

- Networks: Statistical network inference from dynamical omics data; topology and transition characterization in dynamic networks.
- Computational tools/frameworks for omics integration mathiomica.org
- Two Clinical Trials Protocol Director: Vaccination responses in younger and older adults clinicaltrials.gov
- Protocol Director (IRB# 15-071, Active), Pilot for evaluation of individuals for personalized medicine
- Protocol Director (IRB# Study00003581 and NASA eIRB Study000002012 Active), Integrative Data Analysis

▶ **Department of Genetics,** Stanford University, Stanford, CA 94305
Advisor: Professor Michael P. Snyder

- *2009-2014*
  - Integrated Personal Omics Profiling (iPOP): Framework for analysis of dynamical omics data. Parallel analysis of transcriptome, proteome, metabolome and autoantibodyome and temporal integration. Variant detection in RNA and Protein. Applications to personalized medicine.
  - Transcriptomics: Differential analysis of RNA-Seq data, quality control (concordant twin investigations; Asthma; hematopoietic stem cell differentiation).
  - Proteomics: Framework for simultaneously identifying all protein-protein interactions in a cell.
  - Metabolomics: Analysis of time series for mouse microbiome development in gnotobiotic mice.
  - Protein Arrays: Detection of dynamical immune response in Myelodysplastic Syndromes, Multiple Sclerosis, Myeloma, Asthma and Rheumatoid Arthritis.
  - Participated in multiple clinical trials and wrote study protocols for asthma, leukemia and personalized health care
  - Sequencing: Statistics of genomic sequences and homology.
  - Networks: Statistical network inference from dynamical omics data; topology and transition characterization.

▶ **Theoretical Physics,** Department of Physics, Yale University, New Haven, CT 06520
Ph.D. Dissertation Title:*Domains of Quantum Magnetism* (2007)
Advisor: Professor Steven M. Girvin
  - *2006 - 2007*   - Developed a theory for the time evolution of Bose-Einstein spinor condensates and subsequent domain formation using field theoretical techniques and a Lie algebra formalism to successfully explain experiments in ^{87}Rb.
  - *2005 - 2006*   - Investigated Ferromagnetism in quantum Hall bilayer systems by performing analytical field-theoretical calculations using a topological spinor Berry-phase/path-integral formalism.
  - *2004 - 2005*   - Performed analytic renormalization group calculations using smooth cutoffs in modified sine-Gordon models to investigate classical and quantum roughening, additionally modeling the effect of dipolar interactions as motivated by experiments in $LiHoF_4$.
  - *2002 - 2003*   - Developed a field-theoretical soliton model of domain walls motivated by research in quantum magnetism and quantum phase transitions in $LiHoF_4$ and investigated the duality relationships between this model and known statistical models.

▶ **Wright Nuclear Structure Lab (WNSL),** Department of Physics, Yale University, New Haven, CT 06520
Undergraduate Thesis Title: *Nuclear Structure: Differences in R4/2 Ratios in Isotones and Isotopes* (2007) (2000) - Nominated for APS Leroy Apker Award
Advisor: Professor Richard F. Casten
  - *1999 - 2000*   - Performed shell-model calculations and computational nuclear structure research to model collective behavior in nuclei and classify trends in magic nuclei.
    Advisors: Dr. Victor Zamfir and Professor Richard F. Casten.
  - *Summer 2000* - Performed angular-correlations perturbation experiments, developing detection techniques for a moving tape collector and set up cryogenic magnet cooling apparatus.
    Advisor: Professor Alex Wolf.
  - *Summer 1999* - Investigated gamma rays in 4π-Ge detectors (GRETA-Gamma Ray Energy Tracking Array) by developing an algorithm to identify and track positron-electron annihilation events in the detector, simulating the array using GEANT/Mathematica.
    Advisor: Professor Cornelius Beausang.
  - *Summer 1998* - Developed accelerator techniques and vacuum technology, upgraded a linear accelerator and performed beam optimization experiments.
    Advisor: Professor Richard Hyder.

PUBLICATIONS

▶ **Monographs/Books**

1. **George I. Mias**[†]. *Mathematica for Bioinformatics: A Wolfram Language Approach to Omics.* Springer International Publishing. ISBN:3319723766, 9783319723761, Cham, 2018. `doi:10.1007/978-3-319-72377-8`

▶ **Refereed Journals** (†Corresponding Author; * Equal Contribution)

In Preparation

- M. Zheng, C. Piermarocchi, and **George I. Mias**†. Network based anomaly detection. *pending*, 2023

- L. Rogers and **George I. Mias**†. Immune profiling with saliva. *pending*, 2023

In Review/Revision

2. M. Zheng, J. Charvat, S. R. Zwart, S. Mehta, B. E. Crucian, S. M. Smith, J. He, C. Piermarocchi, and **George I. Mias**†. Time-resolved molecular measurements reveal changes in astronauts during spaceflight. *bioRxiv*, page 2023.03.17.530234, 2023. `doi: 10.1101/2023.03.17.530234`

Published

3. R. T. Scott, L. M. Sanders, E. L. Antonsen, J. J. A. Hastings, S.-m. Park, G. Mackintosh, R. J. Reynolds, A. L. Hoarfrost, A. Sawyer, C. S. Greene, B. S. Glicksberg, C. A. Theriot, D. C. Berrios, J. Miller, J. Babdor, R. Barker, S. E. Baranzini, A. Beheshti, S. Chalk, G. M. Delgado-Aparicio, M. Haendel, A. A. Hamid, P. Heller, D. Jamieson, K. J. Jarvis, J. Kalantari, K. Khezeli, S. V. Komarova, M. Komorowski, P. Kothiyal, A. Mahabal, U. Manor, H. Garcia Martin, C. E. Mason, M. Matar, **George I. Mias**, J. G. Myers, C. Nelson, J. Oribello, P. Parsons-Wingerter, R. K. Prabhu, A. A. Qutub, J. Rask, A. Saravia-Butler, S. Saria, N. K. Singh, M. Snyder, F. Soboczenski, K. Soman, D. Van Valen, K. Venkateswaran, L. Warren, L. Worthey, J. H. Yang, M. Zitnik, and S. V. Costes. Biomonitoring and precision health in deep space supported by artificial intelligence. *Nature Machine Intelligence*, 5(3):196–207, 2023. `doi:10.1038/s42256-023-00617-5`

4. L. M. Sanders, R. T. Scott, J. H. Yang, A. A. Qutub, H. Garcia Martin, D. C. Berrios, J. J. A. Hastings, J. Rask, G. Mackintosh, A. L. Hoarfrost, S. Chalk, J. Kalantari, K. Khezeli, E. L. Antonsen, J. Babdor, R. Barker, S. E. Baranzini, A. Beheshti, G. M. Delgado-Aparicio, B. S. Glicksberg, C. S. Greene, M. Haendel, A. A. Hamid, P. Heller, D. Jamieson, K. J. Jarvis, S. V. Komarova, M. Komorowski, P. Kothiyal, A. Mahabal, U. Manor, C. E. Mason, M. Matar, **George I. Mias**, J. Miller, J. G. Myers, C. Nelson, J. Oribello, S.-m. Park, P. Parsons-Wingerter, R. K. Prabhu, R. J. Reynolds, A. Saravia-Butler, S. Saria, A. Sawyer, N. K. Singh, M. Snyder, F. Soboczenski, K. Soman, C. A. Theriot, D. Van Valen, K. Venkateswaran, L. Warren, L. Worthey, M. Zitnik, and S. V. Costes. Biological research and self-driving labs in deep space supported by artificial intelligence. *Nature Machine Intelligence*, 5(3):208–219, 2023. `doi:10.1038/s42256-023-00618-4`

5. S. Xue, L. R. K. Rogers, M. Zheng, J. He, C. Piermarocchi, and **George I. Mias**†. Applying differential network analysis to longitudinal gene expression in response to perturbations. *Front Genet*, 13:1026487, 2022. URL: `https://www.ncbi.nlm.nih.gov/pubmed/36324501`, `doi:10.3389/fgene.2022.1026487`

6. M. Zheng, C. Piermarocchi, and **George I. Mias**†. Temporal response characterization across individual multiomics profiles of prediabetic and diabetic subjects. *Sci Rep*, 12(1):12098, 2022. `doi:10.1038/s41598-022-16326-9`

7. Y. Gao, N. Duque-Wilckens, M. B. Aljazi, A. J. Moeser, **George I. Mias**, A. J. Robison, Y. Zhang, and J. He. Impaired kdm2b-mediated prc1 recruitment to chromatin causes defective neural stem cell self-renewal and asd/id-like behaviors. *iScience*, 25(2):103742, 2022. `doi:10.1016/j.isci.2022.103742`

8. **George I. Mias**[†*], V. V. Singh*, L. R. K. Rogers*, S. Xue, M. Zheng, S. Domanskyi, M. Kanada, C. Piermarocchi, and J. He. Longitudinal saliva omics responses to immune perturbation: a case study. *Sci Rep*, 11(1):710, 2021. `doi:10.1038/s41598-020-80605-6`

9. M. B. Aljazi, Y. Gao, Y. Wu, **George I. Mias**, and J. He. Histone h3k36me2-specific methyltransferase ash1l promotes mll-af9-induced leukemogenesis. *Front Oncol*, 11:754093, 2021. `doi:10.3389/fonc.2021.754093`

10. Y. Gao, N. Duque-Wilckens, M. B. Aljazi, Y. Wu, A. J. Moeser, **George I. Mias**, A. J. Robison, and J. He. Loss of histone methyltransferase ASH1L in the developing mouse brain causes autistic-like behaviors. *Communications Biology*, 4(1):756, 2021. `doi:10.1038/s42003-021-02282-z`

11. M. Zheng, S. Domanskyi, C. Piermarocchi, and G. I. Mias. Visibility graph based temporal community detection with applications in biological time series. *Sci Rep*, 11(1):5623, 2021. `doi:10.1038/s41598-021-84838-x`

12. G. de Los Campos, T. Pook, A. Gonzalez-Reymundez, H. Simianer, **George Mias**, and A. I. Vazquez. Anova-hd: Analysis of variance when both input and output layers are high-dimensional. *PLoS One*, 15(12):e0243251, 2020. `doi:10.1371/journal.pone.0243251`

13. M. B. Aljazi, Y. Gao, Y. Wu, **George I. Mias**, and J. He. Cell signaling coordinates global prc2 recruitment and developmental gene expression in murine embryonic stem cells. *iScience*, 23(11):101646, 2020. `doi:10.1016/j.isci.2020.101646`

14. E. M. Veziroglu and **George I. Mias**[†]. Characterizing extracellular vesicles and their diverse rna contents. *Front Genet*, 11:700, 2020. `doi:10.3389/fgene.2020.00700`

15. **George I. Mias**[†] and M. Zheng. The mathiomica toolbox: General analysis utilities for dynamic omics datasets. *Curr Protoc Bioinformatics*, 69(1):e91, 2020. `doi:10.1002/cpbi.91` **Cover Article.**

16. S. Domanskyi, C. Piermarocchi, and **George I. Mias**[†]. PyIOmica: longitudinal omics analysis and trend identification. *Bioinformatics*, 36(7):2306–2307, 2020. `doi:10.1093/bioinformatics/btz896`

17. R. Roushangar and **George I. Mias**[†]. Multi-study reanalysis of 2,213 acute myeloid leukemia patients reveals age- and sex-dependent gene expression signatures. *Sci Rep*, 9(1):12413, 2019. `doi:10.1038/s41598-019-48872-0`

18. L. R. K. Rogers, M. Verlinde, and **George I. Mias**[†]. Gene expression microarray public dataset reanalysis in chronic obstructive pulmonary disease. *PLoS One*, 14(11):e0224750, 2019. `doi:10.1371/journal.pone.0224750`

19. L. R. K. Rogers, G. de Los Campos, and **George I. Mias**[†]. Microarray gene expression dataset re-analysis reveals variability in influenza infection and vaccination. *Front Immunol*, 10:2616, 2019. `doi:10.3389/fimmu.2019.02616`

20. L. R. K. Brooks and **George I. Mias**[†]. Data-driven analysis of age, sex, and tissue effects on gene expression variability in alzheimer's disease. *Front Neurosci*, 13:392, 2019. `doi:10.3389/fnins.2019.00392`

21. H. Im, V. Rao, K. Sridhar, J. Bentley, T. Mishra, R. Chen, J. Hall, A. Graber, Y. Zhang, X. Li, **George I. Mias**, M. P. Snyder, and P. L. Greenberg. Distinct transcriptomic and exomic abnormalities within myelodysplastic syndrome marrow cells. *Leuk Lymphoma*, 59(12):2952–2962, 2018. `doi:10.1080/10428194.2018.1452210`

22. L. R. K. Brooks and **George I. Mias**[†]. Streptococcus pneumoniae's virulence and host immunity: Aging, diagnostics, and prevention. *Front Immunol*, 9:1366, 2018. `doi:10.3389/fimmu.2018.01366`

23. R. Roushangar and **George I. Mias**[†]. MathIOmica-MSViewer: a dynamic viewer for mass spectrometry files for Mathematica. *J Mass Spectrom*, 52(5):315–318, 2017. `doi:10.1002/jms.3928`

24. **George I. Mias**[†], T. Yusufaly, R. Roushangar, L. R. Brooks, V. V. Singh, and C. Christou. MathIOmica: An integrative platform for dynamic omics. *Sci Rep*, 6:37237, 2016. `doi:10.1038/srep37237`

25. A. Marcobal, T. Yusufaly, S. Higginbottom, M. Snyder, J. L. Sonnenburg, and **George I. Mias**[†]. Metabolome progression during early gut microbial colonization of gnotobiotic mice. *Sci Rep*, 5:11589, 2015. `doi:10.1038/srep11589`

26. M. Snyder, **George Mias**, L. Stanberry, and E. Kolker. Metadata checklist for the integrated personal omics study: proteomics and metabolomics experiments. *OMICS*, 18(1):81–5, 2014. `doi:10.1089/omi.2013.0148`

27. E. Kolker, V. Ozdemir, L. Martens, W. Hancock, G. Anderson, N. Anderson, S. Aynacioglu, A. Baranova, S. R. Campagna, R. Chen, J. Choiniere, S. P. Dearth, W. C. Feng, L. Ferguson, G. Fox, D. Frishman, R. Grossman, A. Heath, R. Higdon, M. H. Hutz, I. Janko, L. Jiang, S. Joshi, A. Kel, J. W. Kemnitz, I. S. Kohane, N. Kolker, D. Lancet, E. Lee, W. Li, A. Lisitsa, A. Llerena, C. Macnealy-Koch, J. C. Marshall, P. Masuzzo, A. May, **George I. Mias**, M. Monroe, E. Montague, S. Mooney, A. Nesvizhskii, S. Noronha, G. Omenn, H. Rajasimha, P. Ramamoorthy, J. Sheehan, L. Smarr, C. V. Smith, T. Smith, M. Snyder, S. Rapole, S. Srivastava, L. Stanberry, E. Stewart, S. Toppo, P. Uetz, K. Verheggen, B. H. Voy, L. Warnich, S. W. Wilhelm, and G. Yandl. Toward more transparent and reproducible omics studies through a common metadata checklist and data publications. *OMICS*, 18(1):10–4, 2014. `doi:10.1089/omi.2013.0149`

28. **George I. Mias**, R. Chen, Y. Zhang, K. Sridhar, D. Sharon, L. Xiao, H. Im, M. P. Snyder, and P. L. Greenberg. Specific plasma autoantibody reactivity in myelodysplastic syndromes. *Sci Rep*, 3:3311, 2013. `doi:10.1038/srep03311`

29. L. Stanberry, **George I. Mias**, W. Haynes, R. Higdon, M. Snyder, and E. Kolker. Integrative analysis of longitudinal metabolomics data from a personal multi-omics profile. *Metabolites*, 3(3):741–60, 2013. `doi:10.3390/metabo3030741`

30. R. Chen, S. Giliani, G. Lanzi, **George I. Mias**, S. Lonardi, K. Dobbs, J. Manis, H. Im, J. E. Gallagher, D. H. Phanstiel, G. Euskirchen, P. Lacroute, K. Bettinger, D. Moratto, K. Weinacht, D. Montin, E. Gallo, G. Mangili, F. Porta, L. D. Notarangelo, S. Pedretti, W. Al-Herz, W. Alfahdli, A. M. Comeau, R. S. Traister, S. Y. Pai, G. Carella, F. Facchetti, K. C. Nadeau, M. Snyder, and L. D. Notarangelo. Whole-exome sequencing identifies tetratricopeptide repeat domain 7a (ttc7a) mutations for combined immunodeficiency with intestinal atresias. *J Allergy Clin Immunol*, 132(3):656–664 e17, 2013. `doi:10.1016/j.jaci.2013.06.013`

31. S. Liu, H. Im, A. Bairoch, M. Cristofanilli, R. Chen, E. W. Deutsch, S. Dalton, D. Fenyo, S. Fanayan, C. Gates, P. Gaudet, M. Hincapie, S. Hanash, H. Kim, S. K. Jeong, E. Lundberg, **George Mias**, R. Menon, Z. Mu, E. Nice, Y. K. Paik, M. Uhlen, L. Wells, S. L. Wu, F. Yan, F. Zhang, Y. Zhang, M. Snyder, G. S. Omenn, R. C. Beavis, and W. S. Hancock. A chromosome-centric human proteome project (c-hpp) to character-

ize the sets of proteins encoded in chromosome 17. *J Proteome Res*, 12(1):45–57, 2013. `doi:10.1021/pr300985j`

32. **George I. Mias** and M. Snyder. Multimodal dynamic profiling of healthy and diseased states for future personalized health care. *Clin Pharmacol Ther*, 93(1):29–32, 2013. `doi:10.1038/clpt.2012.204`

33. **George I. Mias** and M. Snyder. Personal genomes, quantitative dynamic omics and personalized medicine. *Quantitative Biology*, 2013. `doi:10.1007/s40484-013-0005-3`
    Featured Article - Editor Selection; Cover Story; Designed Inaugural Cover and wrote Cover Blurb

34. **George I. Mias**, R. Chen, Y. Zhang, K. Sridhar, D. Sharon, L. Xiao, H. Im, M. P. Snyder, and P. L. Greenberg. Specific plasma autoantibody reactivity in myelodysplastic syndromes. *Sci Rep*, 3:3311, 2013. `doi:10.1038/srep03311`

35. R. Chen*, **George I. Mias***, J. Li-Pook-Than*, L. Jiang*, H. Y. Lam, R. Chen, E. Miriami, K. J. Karczewski, M. Hariharan, F. E. Dewey, Y. Cheng, M. J. Clark, H. Im, L. Habegger, S. Balasubramanian, M. O'Huallachain, J. T. Dudley, S. Hillenmeyer, R. Haraksingh, D. Sharon, G. Euskirchen, P. Lacroute, K. Bettinger, A. P. Boyle, M. Kasowski, F. Grubert, S. Seki, M. Garcia, M. Whirl-Carrillo, M. Gallardo, M. A. Blasco, P. L. Greenberg, P. Snyder, T. E. Klein, R. B. Altman, A. J. Butte, E. A. Ashley, M. Gerstein, K. C. Nadeau, H. Tang, and M. Snyder. Personal omics profiling reveals dynamic molecular and medical phenotypes. *Cell*, 148(6):1293–307, 2012. `doi:10.1016/j.cell.2012.02.009`
    Featured as Genome Advance of the Month by National Human Genome Research Institute (NHGRI)

36. **George I. Mias**[†], N. Cooper, and S. Girvin. Quantum noise, scaling, and domain formation in a spinor bose-einstein condensate. *Physical Review A - Atomic, Molecular, and Optical Physics*, 77(2), 2008. `doi:10.1103/PhysRevA.77.023616`

37. **George I. Mias**[†] and S. Girvin. Absence of domain wall roughening in a transverse-field ising model with long-range interactions. *Physical Review B - Condensed Matter and Materials Physics*, 72(6), 2005. `doi:10.1103/PhysRevB.72.064411`

▶ **Other Media**

38. L. M. Sanders, R. T. Scott, S. V. Costes, E. L. Antonsen, J. Babdor, R. Barker, S. E. Baranzini, A. Beheshti, D. C. Berrios, S. Chalk, G. M. Delgado-Aparicio, B. S. Glicksberg, C. S. Greene, M. Haendel, A. A. Hamid, J. J. A. Hastings, P. Heller, A. L. Hoarfrost, D. Jamieson, K. J. Jarvis, , J. Kalantari, K. Khezeli, S. V. Komarova, M. Komorowski, P. Kothiyal, , G. Mackintosh, A. Mahabal, U. Manor, H. G. Martin, C. E. Mason, M. Matar, **George I. Mias**, J. Miller, J. G. Myers, C. Nelson, J. Oribello, S.-m. Park, P. Parsons-Wingerter, R. K. Prabhu, A. A. Qutub, J. Rask, R. J. Reynolds, A. Saravia-Butler, S. Saria, A. Sawyer, N. K. Singh, F. Soboczenski, M. Snyder, K. Soman, C. A. Theriot, D. Van Valen, K. Venkateswaran, L. Warren, L. Worthey, J. H. Yang, and M. Zitnik. [white paper] machine learning, artificial intelligence and data modeling for the next decade of space biology research and astronaut health support. *Submitted for review by the Decadal Survey Committee and Panels; https://science.nasa.gov/biological-physical/whitepapers*, 2022

39. R. Roushangar and **George I. Mias**[†]. [Software] ClassificaIO: machine learning for classification graphical user interface (2018). PyPI (software publication, preprint available at bioRxiv 240184; https://doi.org/10.1101/240184). `doi:10.5281/zenodo.1472979`

40. L. Brooks and **George I. Mias**[†]. [Data Resource] Rituximab treatment timecourse on primary B cells. Bioproject PRJNA391743, MassIVE MSV000081169.

41. L. Brooks and **George I. Mias**[†]. [Data Resource] integrated transcriptomic and proteomic dynamics of Everolimus treatment in B lymphoblastoid cells. Bioproject PRJNA391449, MassIVE MSV000081170.

42. H. Im and L. a. Jiang. [Data Resource] integrated transcriptomic and proteomic dynamics of Rituximab treatment in B lymphoblastoid cells. Bioproject PRJNA350221, MassIVE MSV000080244.

43. R. Chen, J. Jenks, S. Lyu, S. Runyon, J. Li-Pook-Than, G. Euskirchen, P. Lacroute, **George I. Mias**[†], K. Nadeau[†], and M. Snyder[†]. [Data Resource] an omics view of asthma through discordant monozygotic twins. datasets deposited to dbGap [ID: phs000886.v1.p1].

44. E. Wong[†] and **George I. Mias**[†]. [Data Resource] iPOP snyderome website (2012-2014).

▶ **Selected Proceedings and Conferences**

45. **George I. Mias**[†], C. Piermarocchi, J. Charvat, B. Crucian, S. Smith, S. Zwart, M. Zheng, and S. Xue. Identification of health events in astronaut missions using longitudinal molecular signature detection. In *NASA Human Research Program Investigators' Workshop*, 2022

46. M. Zheng and **George I. Mias**[†]. Longitudinal multiomics data responses aid the detection of collective phenotypic characteristics in prediabetic/diabetic monitoring. In *American Society for Human Genetics Annual Meeting*, 2021

47. S. Xue, C. Piermarocchi, and **George I. Mias**[†]. Differential network analysis of time-series rna-sequencing in response to perturbation. In *American Society for Human Genetics Annual Meeting*, 2021

48. M. Zheng and **George I. Mias**[†]. Characterizing and clustering temporal communities in diabetics' omics data using visibility graphs. In *Biology of Genomes*, Cold Spring Harbor Laboratory, NY, 2021

49. M. Zheng and **George I. Mias**[†]. Detection of immune response changes through multi-omics temporal analysis. In *NHLBI Systems Biology Symposium*, 2021

50. **George I. Mias**[†]. Individualized systems-level profiling of immune response using saliva. In *NHLBI Systems Biology Symposium*, 2021

51. **George I. Mias**[†], C. Piermarocchi, J. Charval, S. Domanskyi, M. Zheng, and X. S. Detecting adverse health events with longitudinal omics monitoring. In *NASA Human Research Program Investigators' Workshop*, 2021

52. **George I. Mias**[†], C. Piermarocchi, S. Domanskyi, M. Zheng, and S. Xue. Integrative personal omics for detection of adverse medical events. In *NASA Human Research Program Investigators' Workshop*, Galveston, TX, 2020

53. **George I. Mias**[†], S. Domanskyi, S. Xue, and C. Piermarocchi. Integrating longitudinal omics for detection of adverse events in deep space missions. In *American Society for Human Genetics Annual Meeting*, Houston, TX, 2019

54. L.R.K. Brooks and **George I. Mias**[†]. Meta-analysis of gene expression variability in Alzheimer's disease. In *American Society for Human Genetics Annual Meeting*, San Diego, CA, 2018

55. **George I. Mias**[†]. Longitudinal individualized saliva omics profiling. In *American Society for Human Genetics Annual Meeting*, San Diego, CA, 2018

56. **George I. Mias**[†]. Integrative proteomics and transcriptomics for personalized wellness: Using saliva and blood to monitor immune response in individuals. In *Human Proteome Organization HUPO 17th Annual World Congress*, Orlando, FL, 2018

57. **George I. Mias**[†]. Multi-omics profiling for individualized precision wellness using blood and saliva. In *American Society for Human Genetics Annual Meeting*, Orlando, FL, 2017

58. L.R.K. Brooks and **George I. Mias**[†]. Longitudinal integrative omics of Rituximab treatment on primary B cells. In *American Society for Human Genetics Annual Meeting*, Orlando, FL, 2017. Reviewers' Choice Abstracts selection

59. V.V. Singh and **George I. Mias**[†]. Integrative omics response profiling of drug treatments in B cells. In *The Genomics of Common Diseases*, Baltimore, MD, 2016

60. V.V. Singh and **George I. Mias**[†]. Integrative dynamic omics of drug treatment responses in B cells. In *Festival of Genomics*, Boston, MA, 2016

61. **George I. Mias**[†]. Integrating dynamic omics responses for universal personalized medicine. *J. Anim. Sci.*, 94:201–201, 2016. `doi:10.2527/jam2016-0416`

62. **George I. Mias**[†], T. Yusufaly, R. Roushangar, L. Brooks, and V. Singh. Resources for integrative dynamic omics and personalized medicine. In *Keystone Symposia on The Cancer Genome and Genomics and Personalized Medicine*, Banff, Canada, 2016

63. **George I. Mias**[†], H. Im, E. Mitsunaga, R. Chen, J. Li-Pook-Than, L. Jiang, and M. Snyder. Network inference, integrative dynamic omics and personalized medicine. In *American Society for Human Genetics 12th Annual Meeting*, San Francisco, CA, 2012

64. **George I. Mias**[†], R. Chen, J. Li-Pook-Than, L. Jiang, H. Tang, and S. M. Personalized medicine through integrative dynamic omics. In *Human Proteome Organization HUPO, 11th Annual World Congress*, Boston, MA, 2012

65. **George I. Mias**[*†], R. Chen[*], J. Li-Pook-Than[*], L. Jiang[*], H. Lam, H. Tang, and M. Snyder. Personalized medicine through integrative dynamic omics. In *Biology of Genomes*, Cold Spring Harbor Laboratory, NY, 2012

66. **George I. Mias**[*†], R. Chen.[*], Y. Zhang, D. Sharon, L. Xiao, K. Sridhar, M. Snyder, and P. Greenberg. Proteomic screening for plasma autoantibody biomarkers in MDS using protein microarrays. *Leukemia Research*, 35:Supplement 1, S23, 2011

67. **George I. Mias**[†] and S.M. Girvin. Bose-Einstein S=1 spinor condensates, dynamics, noise, statistics and scaling. In *Bulletin of the American Physical Society*, 2007

68. **George Mias**[†] and S. Girvin. Domain walls and roughening transition possibilities in a transverse-field Ising model with long-range interactions. In *Bulletin of the American Physical Society*, 2005

▶ **Internal: Yale Physics Department**, Yale University, New Haven, CT 06520

69. **George I. Mias**. *Domains of Quantum Magnetism*. Doctoral dissertation, ISBN: 978-0-549-37286-8, 2007

70. **George I. Mias**. *Nuclear Structure: Differences in R4/2 Ratios in Isotones and Isotopes*. Undergraduate Physics Thesis, *Yale University Physics Departmental Nominee for American Physical Society's LeRoy Apker Award*, 2000

ORAL PRESENTATIONS

excluding faculty interviews and departmental retreats

1. *Detection of time-resolved molecular changes in astronauts during long duration spaceflight*, **Speaker**, 2023 AWG Symposium – The Year of Open Science (NASA), 2023

2. *Identification of Health Events in Astronaut Missions Using Longitudinal Molecular Signature Detection*, **Speaker**, NASA Human Research Program Investigators' Workshop, 2022

3. *Non-Invasive Individualized Systems Medicine*, **Invited Speaker**, Colgate Palmolive Company 2021

4. *Integrative personalized omics profiling next steps: detection and classification of deviations from wellness*, **Invited Speaker**, Translational Research Institute for Space Health / Human Research Program working group, 2021

5. *Detecting Adverse Health Events with Longitudinal Omics Monitoring*, **Speaker**, NASA Human Research Program Investigators' Workshop 2021

6. *Space health and longitudinal omics: detecting potentially adverse events*, **Invited Speaker**, MSU College of Nursing, East Lansing, MI 2020

7. *Space Health*, **Speaker**, MSU Second Annual Precision Health Symposium, East Lansing MI 2019

8. *Omics, Individualized Medicine and Detecting Adverse Events in Deep Space Missions*, **Organizer and Speaker**, Conference on Computational Health 2019, Grand Rapids MI 2019

9. *Longitudinal Omics for Profiling Individualized Immune Responses Using Saliva and Blood*, **Invited Speaker**, University of Alabama at Birmingham, AL 2018

10. *Integrative Proteomics and Transcriptomics for Personalized Wellness: Using Saliva and Blood to Monitor Immune Response in Individuals*, **Promoted Speaker**, Human Proteome Organization HUPO 17th Annual World Congress, Orlando, FL 2018

11. *Integrating Dynamic Omics for Personalized Wellness*, **Weekly Speaker**, Biomedical Engineering Department at the Institute for Quantitative Health Science and Engineering, Michigan State University, East Lansing, MI 2018

12. *Multiple omics profiling towards precision wellness*, **Invited Speaker for Genomics at Wayne**, Wayne State University, Detroit, MI 2017

13. *Integration of multiple dynamic omics and individualized wellness*, **Invited Speaker**, Department of Computational Mathematics, Science and Engineering, Michigan State University, East Lansing, MI 2017

14. *Multi-omics profiling for individualized precision wellness using blood and saliva*, **Platform Talk**, American Society for Human Genetics Annual Meeting, Orlando, FL 2017

15. *Integration of Multiple Dynamic Omics and Individualized Precision Health*, **Invited Speaker**, Colgate-Palmolive Company, Piscataway, NJ 2017

16. *Precision individualized wellness: profiling immune activation of multiple 'omics in healthy and asthmatic individuals*, **Invited Speaker**, Festival of Genomics Boston, Boston, MA 2017

17. *Integrating dynamic omics responses towards universal personalized medicine*, **Invited Speaker**, Festival of Genomics California, San Diego, CA 2016

18. *Integrating dynamic omics responses for universal personalized medicine*, **Invited Speaker**, Grand Rounds, Department of Pediatrics and Human Development, Michigan State University, East Lansing 2016

19. *Integrating dynamic omics responses for universal personalized medicine*, **Invited Plenary Speaker**, Functional Annotation of Animal Genomes (FAANG) ASAS-ISAG Joint Symposium, Salt Lake City, UT 2016

20. *Integrating Dynamic Omics Responses for Personalized Medicine*, **Invited Speaker**, Department of Microbiology and Molecular Genetics, Michigan State University, East Lansing, MI 2016

21. *Resources For Integrative Dynamic Omics and Personalized Medicine*, **Selected Talk**, Joint Session of the Keystone Symposia on The Cancer Genome and Genomics and Personalized Medicine, Banff, Canada 2016

22. *Omics and Personalized Medicine*, **Invited Speaker**, University of the Virgin Islands, US Virgin Islands 2016

23. *Systems Medicine: Dynamic Omics Integration*, **Invited Speaker**, Emerging Caribbean Scientists Program,University of the Virgin Islands, US Virgin Islands 2016

24. *Precision Medicine*, **Organizer and Speaker of Precision Medicine Forum**, Michigan State University, East Lansing, MI 2015

25. *First Steps Towards Personalized Medicine: Dynamic Omics Integration and MathIOmica*, **Invited Speaker**, 4th Annual Cyberinfrastructure (CI) Forum, Michigan State University, East Lansing, MI 2015

26. *Dynamic Omics Integration: a First Step Towards Personalized Medicine*, **Invited Speaker**, CMED Foundational Sciences Seminar Series, Central Michigan University College of Medicine, Mt Pleasant, MI 2015

27. *Dynamic Omics Integration: a First Step Towards Personalized Medicine*, **Invited Speaker**, Science at the Edge, Michigan State University, East Lansing, MI 2015

28. *Integrating Dynamic Omics for Personalized Medicine*, **Seminar Speaker**, Department of Pediatrics and Human Development, Michigan State University, Grand Rapids, MI 2015

29. *2016 HPC Hardware Funding*, **Invited Panelist**, Cyber-Infrastructure Days, Michigan State University, East Lansing, MI 2014

30. *Integrative Dynamic Omics, Networks and Personalized Medicine*, **Invited Speaker**, International Chinese Statistical Association - Korean International Statistical Society Applied Statistics Symposium, Portland, OR 2014

31. *Dynamic Omics Methods for Personalized Medicine: Quantitative Omics Integration*, **Invited Speaker**, Association of Biomolecular Resource Facilities ABRF 2014 Annual Meeting, Albuquerque, NM 2014

32. *Integrating Dynamic Omics into Personalized Medicine*, **Invited Keynote Speaker and Session co-chair** (Molecular Diagnostics in Pathology) 8th European Meeting on Molecular Diagnostics, The Hague / Scheveningen, The Netherlands 2013

33. *Integrative Dynamic Omics Profiling: First Steps Towards Personalized Medicine*, **Invited Keynote Speaker**, Systems Biology 2013 From Cells to Ecosystems, DEPI, Melbourne, Australia 2013

34. *Integrative Personal Omics Profiling and Personalized Medicine*, **Invited Talk**, Conference on Predicting Cell Metabolism and Phenotypes, SRI International, Menlo Park, CA 2013

35. *Multimodal dynamic profiling of healthy and diseased states for personalized healthcare*, **Invited Talk**, Molecular Medicine Tri-Conference, San Francisco, CA 2013

36. *Personalized Medicine Through Integrative Dynamic Omics*, **Talk**, Human Proteome Organization HUPO 11th Annual World Congress, Boston, MA 2012

37. *Integrative Dynamic Omics for Personalized Medicine*, **Invited Seminar**, Arizona State University Biodesign Center, Tempe, AZ 2011

38. *Dynamical Whole Omics Profiling*, **Talk** at Centers of Excellence in Genomic Science – CEGS Ninth Annual Grantee Meeting, Boston, MA 2011

39. *Exploring the Dynamics of Whole Omics Profiling*, **Invited Seminar**, Evol Genome Seminar Series - Stanford, CA 2011

40. *Proteomic Screening for Plasma Autoantibody Biomarkers in MDS Using Protein Microarrays*, **Talk**, 11th International Symposium on Myelodysplastic Syndromes, Edinburgh, United Kingdom 2011

41. *Dynamic Personal Profiles Using Omics Technologies*, **Selected Talk**, Annual Stanford Symposium for Genomics and Personalized Medicine, Stanford, CA 2011

42. *Bose-Einstein F=1 Spinor Condensates: Quantum Dynamics, Fluctuations and Domain Formation*, **Invited Seminar**, University of Toronto, Canada 2007

43. *Bose-Einstein S=1 Spinor Condensates, Dynamics, Noise, Statistics and Scaling*, **Talk**, APS March Meeting, Denver, CO 2007

44. *Roughening Transitions of Domain Walls and Dipolar Interaction Effects*, **Invited Seminar**, PITP/Les Houches Ecole de Physique Summer School on Quantum Magnetism, Les Houches, France 2006

45. *Domain Walls and Roughening Possibilities in a Transverse-field Ising Model with Long-range Interactions*, **Talk**, APS March Meeting, Los Angeles, CA 2005

46. *Introduction to Roughening Transitions*, **Invited Seminar**, Applied Physics Monday Evening Seminar, Yale University, New Haven, CT 2005

MEDIA COVERAGE

▶ Building a better flu shot, MSU Today, Nov. 26 2019 and Jan 7 2020.
  - https://msutoday.msu.edu/news/2020/with-already-2900-people-dead-from-the-flu-we-need-a-better-vaccine/
  - https://www.wlns.com/news/local-news/msu-researchers-are-building-a-better-flu-shot/

▶ Developing a Precision Medicine Algorithm for Use During Space Exploration, MD News, July 1 2019
  - https://mdnews.com/developing-precision-medicine-algorithm-use-during-space-exploration

▶ Keeping Astronauts Healthy During Deep Space Missions, MSU Today, Jan 18, 2019 and Eureka Alert, Jan 22, 2019
  - https://msutoday.msu.edu/news/2019/keeping-astronauts-healthy-during-deep-space-missions/
    https://www.eurekalert.org/pub_releases/2019-01/msu-kah012119.php

▶ Astronauts on Mars? MSU professor helps NASA plan to keep them healthy. Detroit Free Press, Dec 28, 2018
  • https://www.freep.com/story/news/local/michigan/2018/12/28/healthy-astronauts-mars-msu-professor-nasa/2365643002/

PROFESSIONAL SOCIETIES

▶ Active member of GeneLab's Multiomics/Systems Biology Analysis Working Group (AWG) (since 2020).

▶ Active member of the NASA Open Science AI/ML (Artificial Intelligence/Machine Learning) AWG (since 2022).

▶ International Society for Computational Biology (Member since 2015)

▶ Association of Biomolecular Resource Facilities (Member since 2014)

▶ American Society of Human Genetics (Member since 2012)

▶ Human Proteome Organization (Member since 2012)

▶ Apple Developer (Member since 2008)

▶ New York Academy of Sciences (Member since 2007)

▶ American Physical Society (Member since 2003)

▶ Phi Beta Kappa (Member since 2000)

6. TEACHING AND MENTORING

TEACHING

▶ **Michigan State University**, East Lansing, MI 48824
  • *Fall 2022*   - Instructor, BS 161: *Cell and Molecular Biology* (14 x 80 min lectures)
  • *Fall 2021*   - Instructor, BS 161: *Cell and Molecular Biology* (14 x 80 min lectures)
  • *Fall 2020*   - Instructor, BS 161: *Cell and Molecular Biology* (14 x 80 min lectures)
                    - Instructor, BMB 961-001: *Select Topics in Biochemistry II* (3 lectures: Systems Biology, Networks and Systems Medicine)
  • *Spring 2020*   - Instructor, MMG 835: *Eukaryotic Molecular Genetics* (14 x 80 min lectures)
  • *Spring 2019*   - Instructor, MMG 835: *Eukaryotic Molecular Genetics* (14 x 80 min lectures)
  • *Fall 2018*   - Instructor, BMB 961-3: *Topics in Biochemistry* (3 lectures: Systems Biology, Networks and Systems Medicine)
  • *Spring 2018*   - Instructor, MMG 835: *Eukaryotic Molecular Genetics* (14 x 80 min lectures)
  • *Summer 2017* - Preceptor, *Genetics and Genomics Journal Club*, MSU College of Human Medicine (2 x 2 hr sessions)

- *Spring 2017* - Instructor, MMG 835: *Eukaryotic Molecular Genetics* (14 x 80 min lectures)
- *Fall 2016* - Instructor, BMB 961-3: *Topics in Biochemistry* (3 lectures: Systems Biology, Networks and Systems Medicine)
- *Spring 2016* - Instructor, MMG 835: *Eukaryotic Molecular Genetics* (10 x 80 min lectures)
- *Fall 2015* - Instructor, BMB 101: *Frontiers in Biochemistry* (1 lecture: Genomics, Other Omics and Personalized Medicine)
- *Fall 2014* - Instructor, BMB 961-3: *Topics in Biochemistry* (2 lectures: Systems Biology and Network Theory)

▶ **Yale University**, New Haven, CT 06520
- *Spring 2009* - Academic Math/Science Tutor, Yale College Dean's Office (one on one and group tutoring in all undergraduate classes offered at Yale University in physics all levels); mathematics (all levels), introductory astronomy.
  - Teaching Fellow, Physics 166b: *General Physics Laboratory I* (taught section, assisted in class design).
- *Fall 2008* - Instructor, Physics 165a: *General Physics Laboratory I* (assisted in syllabus and class design, in charge of coordinating all aspects of three sections and supervising three teaching fellows).
  - Academic Math/Science Tutor, Yale College Dean's Office.
  - Teaching Fellow, Physics 410a: *Classical Mechanics* (help sections)
- *Summer 2008* - Instructor, Yale College, Physics S165a: *General Physics Laboratory I* (designed class syllabus, in charge of administering the entire class, supervised a teaching fellow and two sections, also lectured one section).
  - Instructor, Yale College, Physics S166b: *General Physics Laboratory II* (designed class syllabus, in charge of administering the entire class, supervised and coordinated two sections and two teaching fellows).
- *Fall 2002* - Teaching Fellow, Physics 420a: *Statistical Thermodynamics* (exam design and administration, graded assignments and held help sections).
- *Spring 2002* - Teaching Fellow, Physics 205b: *Modern Physical Measurement I* (administered class, graded lab reports and supervised experiments).
  - Teaching Fellow, Physics 206b: *Modern Physical Measurement II* (administered class, graded lab reports and supervised different kinds of experiments across electromagnetism and modern physics).
- *Fall 2001* - Teaching Fellow, Physics 205a: *Modern Physical Measurement I* (administered class, graded lab reports and supervised experiments).
  - Teaching Fellow, Physics 206a: *Modern Physical Measurement II*.
- *Summer 2001* - Instructor, Physics S165: *General Physics Laboratory I* (redesigned summer class syllabus, adapted version still currently in use; in charge of administering the entire class, supervising two sections with one teaching fellow and lectured one section).

MENTORING

▶ **Michigan State University**, East Lansing, MI 28912

Undergraduate Students Supervised

- *2021-Present* - Faith Dawson (Professorial Assistant)
- *2020-Present* - Natalie Currie (Professorial Assistant/Student Research Assistant)
- *2021-2022* - Raksha Sridharan (Professorial Assistant)
- *2021* - Naomi Douglas (Summer Student Research Opportunities [SROP])
- *2020-2021* - Megha Pratapwar (Professorial Assistant)
- *2019-2021* - Cameron Lochrie (Professorial Assistant)
- *2019* - Calista Busch (Professorial Assistant, Lyman Briggs)
- *2018-2020* - Michael Bennet (Professorial Assistant)
- *2018-2019* - Priyanka Bhoopathi (Professorial Assistant)
- *2018* - Kenneth Matthews (SROP)
- *2017-2020* - Jennifer Abel (Professorial Assistant, Lyman Briggs)
- *2017-2020* - Madison Verlinde(Professorial Assistant, Lyman Briggs)
- *2017-2020* - Jayna Lenders (Professorial Assistant)
    - RISE Germany Scholarship 2018
    - Gliozzo Endowed Scholarship for Domestic and International Internships 2018
- *2016-2019* - Alisha Ungkuldee (Professorial Assistant, Lyman Briggs)
- *2016-2019* - Connor Schury (Professorial Assistant, Human Biology)
- *2016-2018* - Ashley Garvin (Genomics and Molecular Genetics)
    - MSU Fowler Fellowship – summer research 2016)
    - RISE Germany Scholarship 2016
- *2017* - Kailinn Hairston (SROP)
- *2015-2017* - Keerthana Byreddy (Professorial Assistant, Biotechnology)
- *2014-2018* - Curtis Bunger (Professorial Assistant, Human Biology)
    - MSU Fowler Fellowship – summer research 2016
- *2014-2016* - Hannah Rice (Professorial Assistant, Fisheries and Wildlife)
- *2015-2016* - Elizabeth Deyoung (Human Biology / premed)
- *2014 2016* - Brian Gutermuth (Biochemistry and Molecular Biology /premed)
    - Lyman Briggs College Research Award (2015)
- *2014-2015* - Jessica Mizzi (Biochemistry and Molecular Biology)

Graduate Students Supervised

- *2019-Present* - Shuyue Xue
    - Physics and Astronomy PhD Program
- *2018-2020* - Eran Veziroglu
    - Biomedical Engineering Masters Program
    - Current Position: Medical student at Geisel School of Medicine, Dartmouth College.

- *2014-2019*   - Lavida Rogers (neé Brooks)
    - Microbiology and Molecular Genetics PhD Program
    - Current Position: Assistant Professor (tenure track) Biology at the University of the Virgin Islands
    - AAGA fellowship
    - University enrichment fellowship
    - AGEP Award (2018)
    - Bertina Wentworth Scholar Award (2018)
    - Travel Award MMG (Marvis Richardson Award.) (2017)
    - Ford Application Honorary Mention (2017)
- *2014-2018*   - Raeuf Roushangar
    - Biochemistry and Molecular Biology PhD Program
    - Current Position: Founder and Chief Architect at MetaGentex
    - Paul and Daisy Soros Fellowship for New Americans (2015)
    - AITCH Foundation (interview finalist)

Postdoctoral Scholars Supervised/Mentored
- *2019-2021*   - Minzhang Zheng
    - Current Position: Research Scientist at The George Washington University
- *2019-2021*   - Sergii Domanskyi
    - Current Position: Assistant Computational Scientist, The Jackson Laboratory
- *2014-2017*   - Vikas V. Singh
    - Current Position: Research Scientist-II, Eurofins Viracor Bio-Pharma Service
- *2014-2015*   - Tahir Yusufaly
    - Current Position: Assistant Professor of Radiological Physics at Johns Hopkins Medicine

Thesis Committees
- Member of 10 PhD Thesis Committees

▶ **Stanford University**, Stanford, CA 94305
- Mentoring of three graduate students in guided research projects
- Mentoring of one postdoctoral scholar

▶ **Yale University**, New Haven, CT 06520
- Mentoring of eleven undergraduate students

7. SERVICE

PROFESSIONAL SERVICE

▶ **Grant Review**
- National Science Foundation (NSF) (2022)
- Blood Cancer UK (2020)
- National Institutes of Health (NIH) [P01 applications] (2019-2020)
- National Aeronautics and Space Administration (NASA)
  - 30+ Applications, USA (2017-2021)
  - Panel Chair (2021)
- Czech Science Foundation (GACR), Czech Republic (2016)
- Swiss National Science Foundation (SNSF), Switzerland
  - Roadmap RI 2023 (2022)
  - Sinergia (2020) - Early Postdoc.Mobility (2015)
- Medical Research Council (MRC), UK (2014)

▶ **Journal Review**
- American Journal of Respiratory and Critical Care Medicine
- BMC Bioinformatics
- Cell Systems
- Chaos Solitons and Fractals
- Clinical and Translational Medicine
- Frontiers in Immunology
- Journal of Forensic Science
- Journal of Proteome Research
- Life
- Microbiome
- Molecular and Cellular Proteomics
- npj Digital Medicine
- Oxford Bioinformatics
- PLOS Computational Biology
- PLOS ONE
- Scientific Reports

UNIVERSITY SERVICE

▶ **Michigan State University**, East Lansing, MI 28912
Institute for Quantitative Health Science and Engineering (IQ Center):

- Systems Biology Division Chief (2016-Present)
  - Inaugural Division Chief
  - Organized Division with 5 faculty members
  - Inaugural Division Chief
  - Organized Division with 5 faculty members
  - Represents division with external potential sponsors

- Postdoctoral Mentoring Organizer (2019-Present)
  - Helped establish IQ postdoc association (IQ-PDA)
  - Faculty mentor for IQ postdocs
  - Developed independent development plans for IQ postdocs
  - Developed and implemented structured annual updates for IQ postdocs
- Strategic Planning Committee (2019)
  - Drafted Policy Documents for IQ Center governance
- Leadership Committee (2016-Present)
  - Discuss IQ organization with other division Chiefs and Director
  - Plan IQ events
  - Provide feedback on IQ recruitment
  - Discuss budgeting, core facilities and strategic planning

Systems Computational Omics Group (founding member and leader) (2018-Present)

- Synergy and research working group, consists of multiple MSU PIs across multiple departments (20+ faculty members)
  -Systems Computational Omics Overview: https://omics.natsci.msu.edu/
- Inaugurated annual conference series on computational omics (CoCoH 2019)
- Monthly meetings to discuss research and also present Grant Aims and explore collaborative grant opportunities
- External outreach for computational collaborations

Computational Biology Forum (co-founding member and co-leader) (2021-Present)

- Biweekly training forum for trainees to present their computational biology research across multiple departments (120+ members)
  - co-founded, inaugurated and led (2021 - Present)
  - set up infrastructure and organization and recruited faculty and students

Advisor for:

- ICER Scientific Advisory Board (2019-2022)
- IQ Center faculty recruitment (2016-Present)
- Bioinformatics Course Committee (2016)
- Curriculum for The Department of Computational Mathematics, Science and Engineering (CMSE) computational medicine course (2015-16)

College of Human Medicine:

- Research Committee member [elected] (2020-Present)
  - Representative in Henry Ford building design (2022)

Biochemistry and Molecular Biology:

- Faculty Advisory Committee (2022-Present)
- Qualifying Exam Committee (2018-Present)
- Computers Committee (2017-Present)
- Strategic Planning Committee (2014-15)

Seminars/Conferences

- Organizer and host for Science at the Edge weekly seminar series (2014-2021)
- Organizer/Founder for Conference on Computational Health, Grand Rapids (2019)
- Organizer for Biochemistry and Molecular Biology Departmental Retreat (2016)
- Organizer and co-host for Precision Medicine Forum (2015)
- Host for Biochemistry and Molecular Biology Colloquium (2014)

Faculty Search Committees

- Member of Applied Immunology search committee (2021-Present)
  - 7+ recruitments; Faculty hired: (Drs. Maksymilian Chruszcz [BMB] (University of South Carolina), Stephanie Shames [MMG] (Kansas State University)
- Chair of Pediatrics and Human Development ACF search committee (2016-19)
  - 2 faculty hired (Drs. Bin Chen (UCSF) and Jeremy Prokop (Hudson Alpha))
- Member of CMSE search committee (2015-16)
  - 2 faculty hired (Drs. Arjun Krishnan (Princeton) and Jianrong Wang (MIT))

Grant Reviews

- Strategic Partnership Grants (SPG) (2021-2022)
- Spectrum Health – Michigan State University Alliance (2021-2022)
- Jean P. Schultz Endowed Biomedical Research Fund (2018-2022)
- Academic Competitive Fund (ACF) Proposals (2014-15)
  - Center for Precision Pediatrics
  - Maternal-Infant Center
  - Computational Genomics

8. OTHER

TECHNICAL EXPERIENCE

- ▶ **Programming:** Javascript (Typescript), Swift, Python, C, Objective-C, Fortran, GEANT4, LaTeX, HTML

- ▶ **Systems:** Mac OS X, iOS, UNIX, Linux, Windows

- ▶ **Applications:** Mathematica, MATLAB, Octave, R, Excel, Illustrator, Cytoscape, Pajek, MySQL

LANGUAGES

- ▶ English

- ▶ Greek

- ▶ French