

## **CURRICULUM VITAE**

January 3, 2025

**Philip John Freda, Jr., PhD, MS**

### **CURRENT POSITION**

01/24-Present    Project Scientist, Department of Computational Biomedicine, Cedars-Sinai Medical Center

### **PROFESSIONAL CONTACT INFORMATION**

Business Address:                      Cedars-Sinai Medical Center  
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### **EDUCATION**

12/05              B.S., Administration of Justice, minor: Sociology, Pennsylvania State University  
05/14              M.S., Biology, Saint Joseph's University  
12/18              Ph.D., Entomology, focus: Ecological Genomics, Kansas State University  
01/22              T32 Postdoctoral Training, focus: Machine Learning, Artificial Intelligence and  
Computational Biomedicine, University of Pennsylvania

### **PREVIOUS POSITIONS**

08/12-05/14    Graduate Research Assistant and GK-12 Teaching Fellow, Department of Biology, Saint Joseph's University  
08/14-12/18    Graduate Research Assistant, Department of Entomology, Kansas State University  
05/19-05/21    T32 Postdoctoral Fellow, Department of Biostatistics, Epidemiology and Informatics, Perleman School of Medicine, University of Pennsylvania  
05/21-01/22    Postdoctoral Researcher, Department of Biostatistics, Epidemiology and Informatics, Perleman School of Medicine, University of Pennsylvania  
01/22-12/23    Postdoctoral Scientist, Department of Computational Biomedicine, Cedars-Sinai Medical Center

### **PROFESSIONAL ACTIVITIES**

#### **Committee Services:**

2013              Recruitment Representative, Saint Joseph's University's Graduate Arts and Sciences Program, Loyola University, Maryland - Biology Career Workshop  
2013              Member, Northeast Spotted Wing Drosophila Working Group

2014	Member, Commencement Speaker Committee, Saint Joseph's University
2016	Committee member, Lethal Weapons Event Sub-Committee, Kansas State University
2016-2017	Member-at-Large, Committee on Governmental Issues, Kansas State University
2017-2018	Committee Member, Public Relations, Popenoe Entomology Club, Kansas State University

**Community Service:**

2014-2017	Team Manager, Intramural Softball, Kansas State University
2012-2024	Journal Review Services: <i>Biological Control</i> , <i>Drug and Alcohol Dependence</i> , <i>Entomologia Experimentalis et Applicata</i> , <i>Frontiers in Public Health</i> , <i>Genetica</i> , <i>Genetics</i> , <i>Heredity</i> , <i>Journal of Pest Science</i> , <i>Journal of Medical Internet Research</i> , <i>Journal of Neuroscience Research</i> , <i>Scientific Reports</i>

**Professional Associations/Society Memberships:**

2014-Present	Lifetime Member, Alpha Epsilon Lambda: Graduate Honors Society
2016-Present	Lifetime Member, Golden Key Honour Society

**Mentoring:**

2014-2015	Colin Bailey, Kansas State University, research mentor
2014-2015	Saadia Cleve, Kansas State University, research mentor
2015-2016	Ashley Helget-Wedin, Kansas State University, research mentor
2015-2016	Oshadhi Athukorala Arachchige, Kansas State University, research mentor
2015-2016	Mariah Brown, Kansas State University, research mentor
2015-2017	Nicholas Heter, Kansas State University, research mentor
2015-2017	Jackson Alex, Kansas State University, research mentor
2015-2017	Adam Schieferecke, Kansas State University, research mentor
2016-2018	Zainab Ali, Kansas State University, research mentor
2022	Elizabeth Zhang, Cedars-Sinai Medical Center, research mentor
2022	Tianhao Luo, Cedars-Sinai Medical Center, research mentor

**Certificates:**

2020-Present	Responsible Conduct of Research (RCR) compliant
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**HONORS AND SPECIAL AWARDS**

2014	Biology Graduate Student Award, Saint Joseph's University
2019-2021	Ruth L. Kirschstein Institutional National Research Service Award (NIH T32)
2022-2024	Clinical Scholars, Cedars-Sinai Medical Center
2024-Present	K Scholar, Cedars-Sinai Medical Center

**RESEARCH AWARDS AND GRANTS**

2012-2014	GK-12 Fellowship, HHMI & NSF
2012-2014	Graduate Assistant Scholarship, HHMI & NSF
2014	Travel Award, American Genetics Association
2015	Reginald H. Painter Memorial Scholarship, Kansas State University, Department of Entomology
2015	Award Recipient, Grants in Aid of Research (GIAR), Sigma Xi: Kansas State University Chapter
2016	Travel Award, Kansas State University, Department of Entomology
2014-2017	Timothy R. Donahue Graduate Scholarship, Kansas State University

2016-2017	Don C. Warren Genetics Scholarship, Kansas State University, Department of Entomology
2017	Travel Award, Kansas State University, Department of Entomology
2017	Roger C. Smith Scholarship in Entomology, Kansas State University, Department of Entomology

## **INVITED LECTURES AND PRESENTATIONS**

### **International Presentations**

1. Identifying mechanisms of cold hardiness across metamorphosis in *Drosophila melanogaster*. Tartu, Estonia, 2017.

### **National Presentations**

1. Genomic regions responsible for altered reproductive characteristics of *Arabidopsis thaliana* grown at elevated [CO<sub>2</sub>]. Austin, Texas, 2012.
2. Temporal variation at microsatellite loci in wild-caught *Drosophila simulans*. Kansas City, Missouri, 2014.
3. Decoupling of physiology across metamorphosis. Portland, Oregon, 2016.
4. Phenotypic and genetic decoupling of thermal hardiness across metamorphosis. Philadelphia, Pennsylvania, 2018.
5. Cluster Analysis reveals Socioeconomic Disparities among Elective Spine Surgery Patients. Kona, Hawaii, 2024.

## **TEACHING ACTIVITIES**

2010	Teaching Assistant, Cellular Biology, Saint Joseph's University
2010	Intern, Noyce Scholarship Program, The School District of Philadelphia
2012-2014	Teaching Fellow, GeoKids LINKS GK-12 Program, Saint Joseph's University and the Wagner Free Institute of Science
2016-2017	Teaching Assistant/Lecturer, Insects and People, Kansas State University

## **BIBLIOGRAPHY/PUBLICATIONS**

### **Research Papers – Peer-Reviewed (Published):**

1. **Freda, P.J.**, Braverman, J.M. (2013). *Drosophila suzukii*, or Spotted Wing *Drosophila*, recorded in Southeastern Pennsylvania, USA. *Entomological News*, 123(1), 71-75.
2. Leung, W., Shaffer, C.D., Reed, L.K., Smith, S.T., Barshop, W., Dirkes, W., [...], **Freda, P.J.**, [...], Eglin, S.C.R. (2015). *Drosophila* Muller F Elements maintain a distinct set of genomic properties over 40 million years of evolution. *G3: Genes, Genomes, Genetics*, 5(5), 719-740.
3. **Freda, P.J.**, Alex, J.T., Morgan, T.J., Ragland, G.J. (2017). Genetic decoupling of thermal hardiness across metamorphosis in *Drosophila melanogaster*. *Integrative and Comparative Biology*, 57(5), 999-1009.
4. Everman, E.R., **Freda, P.J.**, Brown, M., Schieferecke, A.J., Ragland, G.J., Morgan, T.J. (2018). Ovary Development and Cold Tolerance of the Invasive Pest *Drosophila suzukii* (Matsumura) in the Central Plains of Kansas, United States. *Environmental Entomology*, 47(4), 1013-1023.
5. **Freda, P.J.**, Ali, Z.M., Heter, N., Ragland, G.J., Morgan, T.J. (2019). Stage-specific genotype-by-environment interactions for cold and heat hardiness in *Drosophila melanogaster*. *Heredity*, 123(4), 479-491.
6. Poulsen, M.N.<sup>†</sup>, **Freda, P.J.**<sup>†</sup>, Troiani, V., Davoudi, A., Mowery, D.L. (2022). Classifying characteristics of opioid use disorder from hospital discharge summaries using natural language processing. *Frontiers in Public Health*, 10(850619). 1-14. <sup>†</sup>Equal Authorship

7. **Freda, P.J.**, Toxopeus, J., Dowle, E.J., Ali, Z.M., Heter, N., Collier, R.L., Sower, I., Tucker, J.C., Morgan, T.J., Ragland, G.J. (2022). Transcriptomic and functional genetic evidence for distinct ecophysiological responses across complex life cycle stages. Journal of Experimental Biology, 255(11), jeb244063.
8. Kennedy, E.E., Davoudi, A., Hwang, S., **Freda, P.J.**, Urbanowicz, R., Bowles, K.H., Mowery, D.L. (2022). Identifying barriers to post-acute referral and characterizing negative patient preferences among hospitalized older adults using natural language processing. AMIA Annual Symposium Proceedings 2022. 606-615.
9. **Freda, P.J.**<sup>†</sup>, Ghosh, A.<sup>†</sup>, Zhang, E., Luo, T., Chitre, A., Polesskaya, O., St. Pierre, C.L., Gao, J., Martin, C.D., Chen, H., Garcia-Martinez, A.G., Wang, T., Han, W., Ishiwari, K., Mayer, P. Lamparelli, A., King, C.P., Palmer A.A., Li, R., Moore, J.H. (2023). Automated quantitative trait locus analysis (AutoQTL). BioData Mining, 16(14), 1-24. <sup>†</sup>Equal Authorship
10. Orlenko, A.<sup>†</sup>, **Freda, P.J.**<sup>†</sup>, Ghosh, A., Choi, H., Matsumoto, N., Bright, T.J., Walker, C.T., Obafemi-Ajayi, T., Moore, J.H. (2023). Cluster Analysis Reveals Socioeconomic Disparities among Elective Spine Surgery Patients. Pacific Symposium on Biocomputing 2024. 359-373. <sup>†</sup>Equal Authorship
11. Poulsen, M.N.<sup>†</sup>, **Freda, P.J.**<sup>†</sup>, Troiani, V., Davoudi, A., Mowery, D.L. (2024). Developing a Framework to Infer Opioid Use Disorder Severity from Clinical Notes to Inform Natural Language Processing Methods: A Characterization Study, JMIR Mental Health. 11:e53366. <sup>†</sup>Equal Authorship
12. Batista, S.<sup>†</sup>, Madar, V.S.<sup>†</sup>, **Freda, P.J.**<sup>†</sup>, Bhandary, P., Ghosh, A., Chitre, A.S., Palmer, A.A., Moore, J.H. (2024). Interaction models matter: an efficient, flexible computational framework for model-specific investigation of epistasis. BioData Mining. 17(7). <sup>†</sup>Equal Authorship
13. Li, C., Mowery, D.L., Ma, X., Yang, R., Vurgun, U., Hwang, S., Donnelly, H.K., Bandhey, H., Senathirajah, Y., Visweswaran, S., Sadhu, E.M., Akhtar, Z., Getzen, E., **Freda, P.J.**, Long, Q., Becich, M.J. (2024). Realizing the potential of social determinants data in EHR systems: A scoping review of approaches for screening, linkage, extraction, analysis, and interventions. Journal of Clinical and Translational Science. 8(1). e147
14. **Freda, P.J.**, Ye, S., Zhang, R., Moore, J.H., Urbanowicz, R.J. (2024). Assessing the limitations of relief-based algorithms in detecting higher-order interactions. BioData Mining. 17(37).
15. **Freda, P.J.**<sup>†</sup>, Ghosh A.<sup>†</sup>, Bhandary, P.<sup>†</sup>, Matsumoto, N., Chitre, A.S., Zhou, J., Hall, M.A., Palmer, A.A., Obafemi-Ajayi, T., Moore, J.H. (2024). PAGER: A novel genotype encoding strategy for modeling deviations from additivity in complex trait association studies. BioData Mining. 17(41). <sup>†</sup>Equal Authorship
16. Sha, Z.<sup>†</sup>, **Freda, P.J.**<sup>†</sup>, Bhandary, P.<sup>†</sup>, Ghosh, A., Matsumoto, N., Moore, J.H., Hu, T. (2024). Distinct network patterns emerge from cartesian and XOR epistasis models: A comparative network science analysis. BioData Mining. 17(61). Manuscript under review. <sup>†</sup>Equal Authorship

#### Submitted Articles and Preprints:

1. Ghosh, A.<sup>†</sup>, **Freda, P.J.**<sup>†</sup>, Shahrestani, S., Boyke, A.E., Orlenko, A., Choi, H., Matsumoto, N., Obafemi-Ajayi, T., Moore, J.H., Walker, C.T. (2024). Pre-operative anemia is an unsuspecting driver of machine learning prediction of adverse outcomes after spinal fusion. The Spine Journal. Manuscript under review. <sup>†</sup>Equal Authorship

#### Reviews – Peer-Reviewed (Published):

1. **Freda, P.J.**, Moore, J.H., Kranzler, H.K. (2021). The phenomics and genetics of addictive and affective comorbidity in opioid use disorder. Drug and Alcohol Dependence, 221(108602).
2. **Freda, P.J.**, Kranzler, H.K., Moore, J.H. (2022). Novel digital approaches to the assessment of problematic opioid use. BioData Mining, 15(1), 1-16.

#### Other Publications:

1. Columnist, Patch.com, Upper Moreland-Willow Grove, “Practical Science with Phil Freda,” articles available from: [philipfreda.com/science\\_education](http://philipfreda.com/science_education)

**Abstracts:**

1. Computational study of flowering time genetics in *Arabidopsis thaliana* with QTL Cartographer. Philadelphia, Pennsylvania, 2011.
2. *Drosophila* biodiversity on the campus of Saint Joseph's University. Philadelphia, Pennsylvania, 2012.
3. *Drosophila* biodiversity on the campus of Saint Joseph's University. Philadelphia, Pennsylvania, 2013.
4. Estimating phage genome sizes by pulsed-field gel electrophoresis for preliminary cluster identification. Ashburn, Virginia, 2013.
5. Temporal variation at microsatellite loci in wild-caught *Drosophila simulans*. Philadelphia, Pennsylvania, 2014.
6. Temporal variation at microsatellite loci in wild-caught *Drosophila simulans*. Manhattan, Kansas, 2015.
7. Evolution of complex life cycles: Is performance constrained across metamorphosis? Manhattan, Kansas, 2015.
8. Decoupling of physiology across metamorphosis. Manhattan, Kansas, 2015.
9. Ontogenetic constraint in the thermal physiology of *Drosophila melanogaster*: A genomic assessment of the adaptive decoupling hypothesis. Manhattan, Kansas, 2015.
10. Phenotypic plasticity promotes persistence of an invasive pest following environmental stress. Manhattan, Kansas, 2016.
11. Decoupling of physiology across metamorphosis. Manhattan, Kansas, 2016.
12. Phenotypic and genetic decoupling of thermal hardiness across metamorphosis. Philadelphia, Pennsylvania, 2018.
13. Automated quantitative trait locus analysis (AutoQTL). West Hollywood, California, 2022.
14. Predicting spine surgery outcomes and post-operative opioid dosage from electronic health records. West Hollywood, California, 2022.
15. Cluster Analysis reveals Socioeconomic Disparities among Elective Spine Surgery Patients. Big Island of Hawaii, Hawaii, 2024.