

# Daniel Lobo

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## Academic & Professional Experience

- Jul 2021 – Present    **Associate Professor**  
Department of Biological Sciences  
University of Maryland, Baltimore County
- Oct 2022 – Present    **Full Member**  
Center for Stem Cell Biology & Regenerative Medicine  
University of Maryland, School of Medicine
- Sep 2017 – Present    **Full Member**  
Marlene and Stewart Greenebaum Comprehensive Cancer Center  
University of Maryland, Medical System
- Aug 2015 – Jun 2021    **Assistant Professor**  
Department of Biological Sciences  
University of Maryland, Baltimore County
- Apr 2011 – Jul 2015    **Postdoctoral Research Associate**  
Department of Biology  
Tufts University
- Oct 2005 – Mar 2011    **Research Assistant**  
Department of Computer Science  
University of Malaga
- Oct 2009 – Dec 2009    **Visiting Research Scholar**  
Department of Computer Science  
Otto-Von-Guericke University
- Dec 2007 – Jun 2008    **Visiting Research Scholar**  
Departments of Computer Science & Mechanical Engineering  
Cornell University
- Oct 2003 – Sep 2005    **Software Engineer**  
Control Systems Division  
Isotrol, Inc.

## Education

- 2015    **Postdoc. Developmental, Regenerative, and Cancer Biology**, Tufts University
- 2010    **Ph.D. Computer Science**, University of Malaga  
Thesis distinguished *Summa Cum Laude, Doctor Europaeus*
- 2007    **M.S. Computer Science and Artificial Intelligence**, University of Malaga  
Thesis distinguished with highest honors

- 2005 **B.S. Computer Science and Computer Engineering**, University of Seville  
Thesis distinguished with highest honors

## Honors & Awards

- 2024 **CNMS Mid-Career Faculty Excellence Award**, UMBC  
2021 **CNMS Early Career Faculty Excellence Award**, UMBC  
2020 **Outstanding Investigator Award (R35)**, National Institutes of Health  
2017 **Research Starter Award**, PhRMA Foundation  
2014 **Annual Postdoc Poster Competition for Travel Fellowships**, 1<sup>st</sup> place, Tufts University  
2013 **Research Visualization Awards**, Software, 2<sup>nd</sup> place, Tufts University  
2012 **Research Visualization Awards**, Illustration, 2<sup>nd</sup> place, Tufts University  
2011 **Elected Full Member**, Sigma Xi, The Scientific Research Society  
2009 **Research Stay Fellowship at Otto-Von-Guericke University**, Education Ministry of Spain  
2009 **Spin-off Award**, University of Malaga  
2008 **Fastest Prototyping Team Award**, The ICRA Robot Challenge, Pasadena, CA  
2007 **Visiting Fellowship at Cornell University**, Cornell University Graduate School  
2005 **Doctoral Fellowship at University of Malaga**, Education Ministry of Spain  
2003 **Travel Scholarship at The University of Edinburgh**, Education Ministry of Spain  
2000 **Undergraduate Scholarship at University of Seville**, Education Ministry of Spain

## Research Support

- 06/2023 – 06/2025 **Maryland Stem Cell Research Fund**, grant #MSCRFL-6092  
D. Lobo, C. Civin. *Inferring the Mechanistic Regulation of Human Hematopoietic Stem-Progenitor Cells During Standard and ROS-induced states.*  
Role: Principal Investigator  
Total funds: \$350,000
- 09/2020 – 06/2025 **National Institutes of Health**, award #R35GM137953  
D. Lobo. *Systems Biology of Shape and Size Regulation.*  
Role: Principal Investigator  
Total funds: \$1,894,361
- 10/2019 – 09/2022 **National Science Foundation**, award #1920079  
H. Pirsiavash, N. Karimi, C. Matuszek, D. Doyle, F. Ferraro. *MRI: Acquisition of a Heterogeneous GPU Cluster to Facilitate Deep Learning Research at UMBC.*  
Role: Senior Personnel  
Total funds: \$300,000
- 10/2018 – 05/2019 **UMBC**, Office of Vice President for Research  
D. Lobo. Supplement for Undergraduate Research Experiences.  
Role: Principal Investigator  
Total funds: \$1,500

- 10/2017 – 05/2018 **UMBC**, Office of Vice President for Research  
D. Lobo. Supplement for Undergraduate Research Experiences.  
Role: Principal Investigator  
Total funds: \$1,500
- 09/2017 – 08/2020 **National Science Foundation**, award #1726023  
M.K. Gobbert, D. Lobo, M. Olano, J. Wang, M. Yu. *MRI: Acquisition of Cutting-Edge GPU and Phi Nodes for the Interdisciplinary UMBC High Performance Computing Facility*.  
Role: Co-Principal Investigator  
Total funds: \$552,353
- 06/2017 – 08/2017 **UMBC**, Office of Vice President for Research  
D. Lobo. *Automated design and optimization of engineered regulatory-metabolic networks for multi-microbe biofuel production*.  
Role: Principal Investigator  
Total funds: \$6,000
- 02/2017 – 07/2018 **PhRMA Foundation**, Research Starter Grant in Informatics  
D. Lobo. *Automated inference of human intra-tumor interaction networks for discovering optimal treatments*.  
Role: Principal Investigator  
Total funds: \$100,000
- 08/2016 **NVIDIA Corporation**  
D. Lobo. *Inferring predictive dynamic regulatory mechanisms from biological experimental data*.  
Role: Principal Investigator  
Total funds: equipment valued at \$6,000
- 06/2016 – 08/2016 **UMBC**, Office of Vice President for Research  
D. Lobo. *Reverse-engineering of integrated regulatory-metabolic networks in bacterial systems*.  
Role: Principal Investigator  
Total funds: \$6,000
- 04/2016 – 08/2019 **National Science Foundation**, award #1566077  
D. Lobo. *CRII: III: Automated discovery of predictive regulatory models from morphogenetic experimental data*.  
Role: Principal Investigator  
Total funds: \$191,000
- 08/2015 **UMBC**  
D. Lobo. Start-up funds.  
Role: Principal Investigator  
Total funds: \$140,000
- 01/2015 – 06/2016 **National Science Foundation**, Extreme Science and Engineering Discovery Environment, award #CDA130008 (renewal)  
D. Lobo, M. Levin. *Automatic discovery of regulatory networks for growth and form*.  
Role: Principal Investigator  
Total funds: computational resources valued at \$32,893
- 07/2013 – 12/2014 **National Science Foundation**, Extreme Science and Engineering Discovery Environment, award #CDA130008

- D. Lobo, M. Levin. *Automated synthesis of biological models from experiment-phenotype data*.  
Role: Principal Investigator  
Total funds: computational resources valued at \$51,118
- 03/2013 **Silicon Mechanics Inc.**, 2nd Annual Research Cluster Grant  
M. Levin, D. Lobo, M. Scheutz, D. Kaplan, C. Börgers  
Role: Co-Principal Investigator  
Total funds: high-performance computer cluster valued at \$80,000
- 11/2012 – 10/2013 **National Science Foundation**, Extreme Science and Engineering Discovery Environment, award #CDA130001  
D. Lobo. *Automated discovery of algorithmic patterning models from biological experimental data*.  
Role: Principal Investigator  
Total funds: computational resources valued at \$6,922
- 09/2011 – 08/2015 **National Science Foundation**, award #1124651  
M. Levin. *Collaborative Research: CDI Type-1: A Computer Framework for Modeling Complex Pattern Formation*.  
Role: Other Personnel – Postdoctoral Associate  
Total funds: \$380,000
- 02/2010 – 03/2014 **Andalusian Regional Ministry of Economy, Innovation, and Science**, award #P09-TIC-5123  
F.J. Vico. *GENEX: Novel computational intelligence techniques for modeling genetic regulatory networks controlling embryonic development*.  
Role: Other Personnel – Graduate Student  
Total funds: €432,535

## Publications

### Preprints

- [1] O.O. Ogunsan, D. Lobo. 2022. *Automatic Generation of Interactive Multidimensional Phase Portraits*. **bioRxiv**, doi:10.1101/2022.02.23.481676.

### Peer-Reviewed Articles

- [2] J.M. Ko, W. Reginato, A. Wolff, D. Lobo. 2024. *Mechanistic regulation of planarian shape during growth and degrowth*. **Development**, 151 (9): dev202353. (Highlighted article: *Mathematical modelling shows how planarians stay in shape*. *Development* (2024) 151 (9): e151\_e0902)
- [3] R. Mousavi, D. Lobo. 2024. *Automatic design of gene regulatory mechanisms for spatial pattern formation*. **NPJ Systems Biology and Applications**, 10(35).
- [4] A. Hari, A. Zarrabi, D. Lobo. 2024. *mergem: merging, comparing, and translating genome-scale metabolic models using universal identifiers*. **NAR Genomics and Bioinformatics**, 6(1), lqae010. (Editor's choice)
- [5] A. Wolff, C. Wagner, J. Wolf, D. Lobo. 2022. *In situ probe and inhibitory RNA synthesis using streamlined gene cloning with Gibson assembly*. **STAR Protocols**, 3, 101458.
- [6] D. Lobo. 2022. *Formalizing phenotypes of regeneration*. S. Blanchoud, B. Galliot (Eds.), **Whole-body Regeneration**, Springer, pp. 663-679.

- [7] R. Mousavi, S.H. Konuru, D. Lobo. 2021. *Inference of dynamic spatial GRN models with multi-GPU evolutionary computation*. **Briefings in Bioinformatics**, 22(5), bbab104.
- [8] J. Ko, R. Mousavi, D. Lobo. 2021. *Computational systems biology of morphogenesis*. S. Cortassa, M.A. Aon (Eds.), **Computational Systems Biology in Medicine and Biotechnology**, Springer, pp. 343-365.
- [9] J. Hwang, A. Hari, R. Cheng, J.G. Gardner, D. Lobo. 2020. *Kinetic modeling of microbial growth, enzyme activity, and gene deletions: an integrated model of  $\beta$ -glucosidase function in *Cellvibrio japonicus**. **Biotechnology and Bioengineering**, 117, pp. 3876-3890.
- [10] A. Hari, D. Lobo. 2020. *Fluxer: a web application to compute and visualize genome-scale metabolic flux networks*. **Nucleic Acids Research**, 48, pp. 427-435.
- [11] J. Roy, E. Cheung, J. Bhatti, A. Muneem, D. Lobo. 2020. *Curation and annotation of planarian gene expression patterns with segmented reference morphologies*. **Bioinformatics**, 36(9), pp. 2881-2887.
- [12] J.M. Ko, D. Lobo. 2019. *Continuous dynamic modeling of regulated cell adhesion: sorting, intercalation, and involution*. **Biophysical Journal**, 117(11), pp. 2166-2179.
- [13] S. Herath, D. Lobo. 2019. *Cross-inhibition of Turing patterns explains the self-organized regulatory mechanism of planarian fission*. **Journal of Theoretical Biology**, 485, 110042.
- [14] M. García-Quismondo, M. Levin, D. Lobo. 2017. *Modeling regenerative processes with Membrane Computing*. **Information Sciences** 381, pp. 229-249.
- [15] D. Lobo, M. Lobikin, M. Levin. 2017. *Discovering novel phenotypes with automatically inferred dynamic models: a partial melanocyte conversion in *Xenopus**. **Scientific Reports** 7, 41339.
- [16] D. Lobo, M. Levin. 2017. *Computing a worm: reverse-engineering planarian regeneration*. A. Adamatzky (Ed.), **Advances in Unconventional Computing: Emergence, Complexity and Computation**, Springer, pp. 637-654.
- [17] D. Lobo, J. Morokuma, M. Levin. 2016. *Computational discovery and in vivo validation of *hnf4* as a regulatory gene in planarian regeneration*. **Bioinformatics** 32(17), pp. 2681-2685.
- [18] F. Durant, D. Lobo, J. Hammelman, M. Levin. 2016. *Physiological controls of large-scale patterning in planarian regeneration: A molecular and computational perspective on growth and form*. **Regeneration** 3(2), pp. 78-102. (Selected for the journal cover)
- [19] D. Lobo, J. Hammelman, M. Levin. 2016. *MoCha: molecular characterization of unknown pathways*. **Journal of Computational Biology** 23(4), pp. 291-297.
- [20] J. Hammelman, D. Lobo, M. Levin. 2016. *Artificial neural networks as models of robustness in development and regeneration: stability of memory during morphological remodeling*. S. Shanmuganathan, S. Samarasinghe (Eds.), **Artificial Neural Network Modelling**, Springer, pp. 45-65.
- [21] M. Emmons-Bell, F. Durant, J. Hammelman, N. Bessonov, V. Volpert, J. Morokuma, K. Pinet, D. Adams, A. Pietak, D. Lobo, M. Levin. 2015. *Gap junctional blockade stochastically induces different species-specific head anatomies in genetically wild-type *Girardia dorotocephala* flatworms*. **International Journal of Molecular Sciences** 16(11), pp. 27865-27896. (Selected for the journal cover)
- [22] B.P. Rubin, J. Brockes, B. Galliot, U. Grossniklaus, D. Lobo, M. Mainardi, M. Mirouze, A. Prochiantz, A. Steger. 2015. *A dynamic architecture of life*. **F1000Research** 4:1288.

- [23] M. Lobikin, D. Lobo, D.J. Blackiston, C.J. Martyniuk, E. Tkachenko, M. Levin. 2015. *Serotonergic regulation of melanocyte conversion: A bioelectrically regulated network for stochastic all-or-none hyperpigmentation*. **Science Signaling** 8(397), p. ra99. (Reviewed in a focus paper, **Science Signaling** 8(397), pp. fs17)
- [24] D. Lobo, M. Levin. 2015. *Inferring regulatory networks from experimental morphological phenotypes: a computational method reverse-engineers planarian regeneration*. **PLoS Computational Biology** 11(6): e1004295. (In the top-10 most-viewed research articles in the journal)
- [25] D. Lobo, E.B. Feldman, M. Shah, T.J. Malone, M. Levin. 2014. *Limbform: a functional ontology-based database of limb regeneration experiments*. **Bioinformatics** 30(24), pp. 3598-3600.
- [26] D. Lobo, E.B. Feldman, M. Shah, T.J. Malone, M. Levin. 2014. *A bioinformatics expert system linking functional data to anatomical outcomes in limb regeneration*. **Regeneration** 1(2), pp. 37-56.
- [27] M. Budnikova, J.W. Habig, D. Lobo, N. Cornia, M. Levin, T. Andersen. 2014. *Design of a flexible component gathering algorithm for converting cell-based models to graph representations for use in evolutionary search*. **BMC Bioinformatics** 15:178.
- [28] D. Lobo, M. Solano, G.A. Bubenik, M. Levin. 2014. *A linear-encoding model explains the variability of the target morphology in regeneration*. **Journal of the Royal Society Interface** 11(92):20130918. (Recommended by **F1000Prime**, Faculty of 1000, 718232471)
- [29] D. Lobo, T.J. Malone, M. Levin. 2013. *Planform: an application and database of graph-encoded planarian regenerative experiments*. **Bioinformatics** 29(8), pp. 1098-1100.
- [30] D. Lobo, T.J. Malone, M. Levin. 2013. *Towards a bioinformatics of patterning: a computational approach to understanding regulative morphogenesis*. **Biology Open** 2(2), pp. 156-169. (Selected for the journal cover)
- [31] D. Lobo, J.D. Fernández, F.J. Vico. 2013. *Behavior finding: morphogenetic designs shaped by function*. R. Doursat, H. Sayama, O. Michel (Eds.), **Morphogenetic Engineering: Toward Programmable Complex Systems**, Springer-Verlag, pp. 441-472.
- [32] M. Lobikin, B. Chernet, D. Lobo, M. Levin. 2012. *Resting potential, oncogene-induced tumorigenesis, and metastasis: the bioelectric basis of cancer in vivo*. **Physical Biology** 9(6): 065002. (Selected for the journal cover)
- [33] D. Lobo, W.S. Beane, M. Levin. 2012. *Modeling planarian regeneration: a primer for reverse-engineering the worm*. **PLoS Computational Biology** 8(4): e1002481. (Selected for the journal cover)
- [34] J.D. Fernández, D. Lobo, G.M. Martín, R. Doursat, F.J. Vico. 2012. *Emergent diversity in an open-ended evolving virtual community*. **Artificial Life** 18(2), pp. 199-222.
- [35] D. Lobo, F.J. Vico, J. Dassow. 2011. *Graph grammars with string-regulated rewriting*. **Theoretical Computer Science** 412(43), pp. 6101-6111. (Reviewed in **Mathematical Reviews**, American Mathematical Society, MR2883035)
- [36] D. Lobo, F.J. Vico. 2010. *Evolution of form and function in a model of differentiated multicellular organisms with gene regulatory networks*. **BioSystems** 102(2-3), pp. 112-123.
- [37] D. Lobo, F.J. Vico. 2010. *Evolutionary development of tensegrity structures*. **BioSystems** 101(3), pp. 167-176.

- [38] D. Lobo, D.A. Hjelle, H. Lipson. 2009. *Reconfiguration algorithms for robotically manipulatable structures*. **Proceedings of the ASME/IFToMM International Conference on Reconfigurable Mechanisms and Robots**, ReMAR2009, pp. 13-22, London, UK.
- [39] Y. Seamari, J.A. Narvaez, F.J. Vico, D. Lobo, M.V. Sanchez-Vives. 2007. *Robust off - and online separation of intracellularly recorded Up and Down cortical states*. **PLoS ONE** 2(9): e888.
- [40] F.J. Vico, V. Canteli, D. Lobo, J.D. Fernández, C. Bandera, A. García-Linares, R. Rivas, M. Rosen, B. Schlegel. 2007. *Mobile Just-in-time training application for emergency healthcare services*. **Proceedings of the IADIS International Conference on Mobile Learning**, IADIS2007, pp. 209-213, Lisbon, Portugal.

### Peer-Reviewed Abstracts and Short Articles

- [41] R. Mousavi, D. Lobo. 2023. *Designing gene regulatory mechanisms for spatial patterns with an automated machine learning framework*. 22<sup>nd</sup> International Conference on Systems Biology, Hartford, CT.
- [42] D. Lobo. 2023. *Dynamic regulation of whole-body patterns and shape: systems biology of planarian worms*. 22<sup>nd</sup> International Conference on Systems Biology, Hartford, CT.
- [43] A. Wolff, D. Lobo. 2023. *Rates of Allometric Scaling Differ Among Planarian Organs*. 5<sup>th</sup> North American Planarian Meeting, Portland, OR.
- [44] J.M. Ko, W. Reginato, D. Lobo. 2023. *The Mechanism of Planarian Shape During Growth and Degrowth*. 5<sup>th</sup> North American Planarian Meeting, Portland, OR.
- [45] B. Teferedegn, D. Lobo. 2022. *Growth and Fission Dynamics During Asexual Reproduction*. 26<sup>th</sup> Annual Undergraduate Research and Creative Achievement Day, UMBC, Baltimore, MD.
- [46] F. Ojo, J. Ko, D. Lobo. 2022. *Optimizing Evolutionary Algorithm Metaparameters for the Inference of Dynamic Models of Growth and Shape*. 26<sup>th</sup> Annual Undergraduate Research and Creative Achievement Day, UMBC, Baltimore, MD.
- [47] A. Rizvi, D. Lobo. 2021. *Characterizing the Temporal Dynamics of Planarian Fission*. 25<sup>th</sup> Annual Undergraduate Research and Creative Achievement Day, UMBC, Baltimore, MD.
- [48] N. Shaikh, D. Lobo. 2021. *Morphological Shape Dynamics during Planaria Growth and Degrowth Behaviors*. 25<sup>th</sup> Annual Undergraduate Research and Creative Achievement Day, UMBC, Baltimore, MD.
- [49] T. Ogunsan, D. Lobo. 2021. *Automatically Generated Phase Portraits For Understanding Biological Systems*. 25<sup>th</sup> Annual Undergraduate Research and Creative Achievement Day, UMBC, Baltimore, MD.
- [50] A. Hari, D. Lobo. 2020. *A novel methodology and web application for computing, visualizing and analyzing genome-scale metabolic flux networks*. Annual Meeting of the Society for Mathematical Biology, virtual.
- [51] J. Ko, D. Lobo. 2020. *Regulated Cell Adhesion Dynamics in a Continuous Model: Sorting, Intercalation, and Involution*. Annual Meeting of the Society for Mathematical Biology, virtual.
- [52] D. Lobo. 2020. *A Turing system explains regeneration patterning and fission behavior in planaria*. Annual Meeting of the Society for Mathematical Biology, virtual.

- [53] A. Hari, D. Lobo. 2020. *Computing, analyzing and visualizing genome-scale metabolic flux networks with Fluxer*. 28<sup>th</sup> International Conference on Intelligent Systems for Molecular Biology, virtual
- [54] J. Ko, D. Lobo. 2020. *Modeling Sorting, Intercalation, and Involution Tissue Behaviors due to Regulated Cell Adhesion*. 28<sup>th</sup> International Conference on Intelligent Systems for Molecular Biology, virtual
- [55] D. Lobo. 2020. *Whole-body regeneration and size-dependent fission controlled by a self-regulated Turing system in planaria*. 28<sup>th</sup> International Conference on Intelligent Systems for Molecular Biology, virtual
- [56] K. Taguba, D. Lobo. 2020. *An Efficient Machine Learning Method For Building Atlases Of Gene Regulatory Networks*. 24<sup>th</sup> Annual Undergraduate Research and Creative Achievement Day, UMBC, Baltimore, MD.
- [57] H. Ramcharan, D. Lobo. 2020. *Identifying Spatial And Temporal Gene Expression Dynamics From Multiple Sequencing Data*. 24<sup>th</sup> Annual Undergraduate Research and Creative Achievement Day, UMBC, Baltimore, MD.
- [58] O. Ogunsan, D. Lobo. 2020. *Automatically Generated Phase Portraits For Understanding Biological Systems*. 24<sup>th</sup> Annual Undergraduate Research and Creative Achievement Day, UMBC, Baltimore, MD.
- [59] S. Hu, D. Lobo. 2020. *Automated Registration Of Planarian Gene Expression Patterns*. 24<sup>th</sup> Annual Undergraduate Research and Creative Achievement Day, UMBC, Baltimore, MD.
- [60] A. Rizvi, N. Shaikh, T. deCarvalho, D. Lobo. 2019. *Planarian fission behavior is modulated by population density and body length*. 22<sup>nd</sup> Undergraduate Research Symposium in the Chemical and Biological Sciences, UMBC, Baltimore, MD.
- [61] A. Rizvi, N. Shaikh, T. deCarvalho, D. Lobo. 2019. *Planarian fission behavior is modulated by population density and body length*. Annual Summer Undergraduate Research Fest, UMBC, Baltimore, MD.
- [62] J. Ko, D. Lobo. 2019. *Dynamic regulation of cell adhesion molecules in a continuous mathematical model*. Proceedings of the 2019 Mid-Atlantic Regional Meeting of the Society for Developmental Biology, p. 32, University Park, PA.
- [63] E. Cheung, J. Roy, D. Lobo. 2019. *Semi-automatic Ontology Curation Methods for a Planarian Gene Expression Pattern Database*. 23<sup>rd</sup> Annual Undergraduate Research and Creative Achievement Day, UMBC, Baltimore, MD.
- [64] C. Larkin, K.T. Pickford, D. Lobo. 2019. *An Evolutionary Algorithm to Reverse-Engineer Tumor Sub-Clonal Dynamics and Predict Optimal Treatment Targets*. 23<sup>rd</sup> Annual Undergraduate Research and Creative Achievement Day, UMBC, Baltimore, MD.
- [65] J. Ko, D. Lobo. 2019. *Dynamic regulation of cell adhesion molecules for tissue patterning*. 35<sup>th</sup> Annual GABS Symposium, UMBC, Baltimore, MD.
- [66] P. H. Ng, J. Wolf, T. deCarvalho, D. Lobo. 2019. *Molecular validation of a model-driven hypothesis on planarian fission*. 35<sup>th</sup> Annual GABS Symposium, UMBC, Baltimore, MD.
- [67] A. Hari, J. Hwang, D. Lobo. 2019. *Kinetic and Stoichiometric Analyses to Reverse Engineer Metabolic and Genetic Networks in *Cellvibrio japonicus**. 35<sup>th</sup> Annual GABS Symposium, UMBC, Baltimore, MD.
- [68] S. Herath, D. Lobo. 2019. *Cross-inhibited Turing patterns explain the self-organized signaling of planarian fission*. 7<sup>th</sup> Annual Winter Q-Bio Conference, Oahu, HI.



- [69] J. Roy, J. Bhatti, D. Lobo. 2018. *A Software Tool for the Curation of Planarian Gene Expression Patterns*. Annual Summer Undergraduate Research Fest, UMBC, Baltimore, MD.
- [70] E. Cheung, A. Muneem, J. Bhatti, J. Roy, D. Lobo. 2018. *A Centralized Database and Website of Planarian Gene Expression Patterns*. Annual Summer Undergraduate Research Fest, UMBC, Baltimore, MD.
- [71] C. Larkin, K.T. Pickford, D. Lobo. 2018. *Inferring Dynamic Models of Tumor Sub-Clonal Interactions to Predict Optimal Treatment Targets*. 26<sup>th</sup> Conference on Intelligent Systems for Molecular Biology, Chicago, IL.
- [72] S. Hu, D. Lobo. 2018. *Correcting differences in experimental protocols with dynamic time warping*. 22<sup>nd</sup> Annual Undergraduate Research and Creative Achievement Day, UMBC, Baltimore, MD.
- [73] J. Bhatti, J. Roy, D. Lobo. 2018. *A Software Tool for the Curation of Planarian Gene Expression Patterns*. 22<sup>nd</sup> Annual Undergraduate Research and Creative Achievement Day, UMBC, Baltimore, MD.
- [74] E. Cheung, A. Muneem, J. Bhatti, J. Roy, D. Lobo. 2018. *A Centralized Database and Website of Planarian Gene Expression Patterns*. 22<sup>nd</sup> Annual Undergraduate Research and Creative Achievement Day, UMBC, Baltimore, MD.
- [75] C. Larkin, K.T. Pickford, D. Lobo. 2018. *Inferring Mathematical Dynamic Models of Tumor Sub-Clonal Interactions to Predict Optimal Treatment Targets*. 22<sup>nd</sup> Annual Undergraduate Research and Creative Achievement Day, UMBC, Baltimore, MD.
- [76] J. Ko, S. Herath, D. Lobo. 2018. *Simulating Cell Sorting by Differential Adhesion Using Continuous Mathematical Models*. 34<sup>th</sup> Annual GABS Symposium, UMBC, Baltimore, MD.
- [77] C. Larkin, K.T. Pickford, D. Lobo. 2018. *An Evolutionary Algorithm to Reverse-Engineer Tumor Sub-Clonal Dynamics and Predict Optimal Treatment Targets*. 6<sup>th</sup> Annual Winter Q-Bio Meeting, p. 92, Maui, HI.
- [78] J. Bhatti, J. Roy, L. Roth, D. Lobo. 2017. *Centralizing planarian regenerative experiments and their gene expression patterns with mathematical databases*. 20<sup>th</sup> Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, p. 153, UMBC, Baltimore, MD.
- [79] C. Larkin, K.T. Pickford, D. Lobo. 2017. *A systems biology approach for inferring tumor sub-clonal dynamics and predicting prime therapeutic targets*. 20<sup>th</sup> Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, p. 71, UMBC, Baltimore, MD.
- [80] C. Larkin, K. Pickford, D. Lobo. 2017. *A Computational Framework to Reverse-Engineer Intratumor Sub-Clonal Dynamic Models and Predict Optimal Treatment Targets*. Annual Summer Undergraduate Research Fest, UMBC, Baltimore, MD.
- [81] J. Bhatti, D. Lobo. 2017. *Paving the way for regenerative medicine: curating planarian experiments in a centralized mathematical database*. Annual Summer Undergraduate Research Fest, UMBC, Baltimore, MD.
- [82] S. Herath, M. Ebeid, D. Lobo. 2017. *Automatic Inference of Dynamic Regulatory Networks Controlling Shape And Form*. 18<sup>th</sup> International Conference on Systems Biology, Blacksburg, VA.
- [83] S. Herath, D. Lobo. 2017. *A continuous mathematical framework for biological shapes formation*. Mid-Atlantic Meeting of the Society for Developmental Biology, Baltimore, MD.

- [84] J. Hwang, M. Plungis, M. Avadhani, D. Lobo. 2017. *Constraining Automated Metabolic and Regulatory Inference Algorithms with Predicted Enzymatic Reactions*. 21<sup>st</sup> Annual Undergraduate Research and Creative Achievement Day, UMBC, Baltimore, MD.
- [85] S. Herath, D. Lobo. 2017. *A continuous mathematical framework for biological shapes formation*. 21<sup>st</sup> Annual Undergraduate Research and Creative Achievement Day, UMBC, Baltimore, MD.
- [86] J. Bhatti, A. Muneem, D. Lobo. 2017. *Paving the way for regenerative medicine: curating planarian experiments in a centralized mathematical database*. 21<sup>st</sup> Annual Undergraduate Research and Creative Achievement Day, UMBC, Baltimore, MD.
- [87] J. Hwang, M. Plungis, M. Avadhani, D. Lobo. 2017. *Constraining Automated Metabolic and Regulatory Inference Algorithms with Predicted Enzymatic Reactions*. Annual Graduate Association of Biological Sciences Symposium, UMBC, Baltimore, MD.
- [88] C. Larkin, D. Lobo. 2016. *Understanding Tumor Sub-Clonal Dynamics Using a Computational Framework*. Annual Biomedical Research Conference for Minority Students, Tampa, FL.
- [89] J. Bhatti, A. Muneem, D. Lobo. 2016. *Paving the way for regenerative medicine: curating planarian experiments in a centralized mathematical database*. 19<sup>th</sup> Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, p. 221, UMBC, Baltimore, MD.
- [90] C. Larkin, D. Lobo. 2016. *Understanding Tumor Sub-Clonal Dynamics Using a Computational Framework*. 19<sup>th</sup> Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, p. 198, UMBC, Baltimore, MD.
- [91] C. Larkin, D. Lobo. 2016. *Understanding Tumor Sub-Clonal Dynamics Using a Computational Framework*. SACNAS National Diversity in STEM Conference, Long Beach, CA.
- [92] M. Avadhani, Y. Jampana, S. Amin, M. Ebeid, S. Herath, C. Larkin, J. Bhatti, A. Muneem, M. Plungis, D. Lobo. 2016. *Reverse-Engineering Dynamic and Stochastic Regulatory Networks from Morphological Experimental Data*. 17<sup>th</sup> International Conference on Systems Biology, Barcelona, Spain.
- [93] M. Plungis, M. Avadhani, D. Lobo. 2016. *A Machine Learning Method for Deriving Metabolic and Regulatory Models in Bacterial Systems*. Annual Summer Undergraduate Research Fest, UMBC, Baltimore, MD.
- [94] J. Bhatti, A. Muneem, D. Lobo. 2016. *Paving the way for regenerative medicine: curating planarian experiments in a centralized mathematical database*. Annual Summer Undergraduate Research Fest, UMBC, Baltimore, MD.
- [95] S. Herath, M. Ebeid, D. Lobo. 2016. *A Mathematical and Computational Framework for Discovering Models of Shape and Form Regeneration*. Annual Summer Undergraduate Research Fest, UMBC, Baltimore, MD.
- [96] C. Larkin, D. Lobo. 2016. *A Computational Method for Inferring Mathematical Models and Optimal Treatments of Tumor Sub-Clonal Dynamics*. Annual Summer Undergraduate Research Fest, UMBC, Baltimore, MD.
- [97] D. Lobo. 2015. *Reverse engineering dynamic regulatory networks of planarian regeneration from experimental resultant phenotypes*, Third North American Planarian Meeting, Chicago, IL.
- [98] D. Lobo, M. Levin. 2014. *Automatic discovery of regulatory networks from morphological experimental data*. Proceedings of the 12<sup>th</sup> ISCB Rocky Mountain Bioinformatics Conference, pp. 14, 64-65, Aspen, CO.

- [99] D. Lobo, M. Levin. 2012. *A new bioinformatics of shape for regenerative science*. Proceedings of the American Association for the Advancement of Science, Pacific Division, 31(1), pp. 63-64, Boise, ID.
- [100] F.J. Vico, D. Lobo, A. Gómez, S. Burrezo, J.D. Fernández, L. Duloquin, B. Maury, N. Peyrieras. 2009. *LTMaker: a tool for semiautomatic reconstruction of the embryonic lineage tree from 4D-microscopy*. Proceedings of the RNS/ISC PIF International Conference on Morphogenesis in Living Systems, MLS2009, pp. 59-60, Paris, France.
- [101] Y. Seamari, J.A. Narvaez, F.J. Vico, D. Lobo, M.V. Sanchez-Vives. 2007. *Separación automática off - y online de estados corticales de activación en registros intracelulares*, Proceedings of the Spanish Society of Neuroscience, XII, p. 101, Valencia, Spain.
- [102] F.J. Vico, V. Canteli, D. Lobo, J.D. Fernández, C. Bandera, A. García-Linares, R. Rivas, M. Rosen, B. Schlegel. 2007. *Just-in-time etraining applied to emergency medical services*. Proceedings of the International Conference on Computational Intelligence in Medicine and Healthcare, CIMED2007, p. 45, Plymouth, UK.

## Seminars & Talks

- 2024 **Annual Meeting of the Society for Mathematical Biology**. Seoul, Korea. *Genetic Regulation of Dynamic Whole-Body Shapes*.
- 2024 **Maryland Spring Stem Cell Symposium and Workshop**, Baltimore, MD. *Systems Biology of Stem Cell Regulation*.
- 2024 **16<sup>th</sup> ISCB Great Lakes Bioinformatics Conference**, Pittsburgh, PA. Keynote: *Inference and design of gene regulatory mechanisms for temporal and spatial phenotypes*.
- 2024 **3<sup>rd</sup> EMBL-IBEC Conference on Engineering Multicellular Systems**, Barcelona, Spain. *Automatic inference and design of spatial regulatory mechanisms*.
- 2023 **Carnegie Mellon - University of Pittsburgh Ph.D. Program in Computational Biology Seminar Series**, Pittsburgh, PA. *Automatic inference of spatial and temporal regulatory mechanisms*.
- 2023 **22<sup>nd</sup> International Conference on Systems Biology**. Hartford, CT. *Dynamic regulation of whole-body patterns and shape: systems biology of planarian worms*.
- 2023 **National Institute on Aging**, National Institutes of Health, Baltimore, MD. *Systems Biology of Growth and Form*.
- 2023 **National Academy of Engineering Grand Challenges Scholars**, University of Maryland, Baltimore County. *AI for Discovering Mechanisms in Biology and Health*.
- 2022 **U-RISE/HHMI Seminar Series**, University of Maryland, Baltimore County. *Systems Biology of Growth and Form*.
- 2022 **MSB Annual Retreat**, Marlene and Steward Greenebaum Comprehensive Cancer Center, virtual. *Inference of dynamic cancer mechanisms: from model organisms to patients*.
- 2021 **Interdisciplinary Center for Quantitative Modeling in Biology**, University of California, Riverside, virtual. *Systems Biology of Growth and Form*.
- 2020 **Annual Meeting of the Society for Mathematical Biology**, virtual. *A Turing system explains regeneration patterning and fission behavior in planaria*.

- 2020 **28<sup>th</sup> International Conference on Intelligent Systems for Molecular Biology**, virtual. *Whole-body regeneration and size-dependent fission controlled by a self-regulated Turing system in planaria.*
- 2019 **Hematology/Oncology Grand Rounds**, University of Maryland Medical Center, Baltimore, MD. *Computational Systems Biology of Cancer Dynamics.*
- 2019 **119<sup>th</sup> International Titisee Conference**, Titisee, Germany. *Dynamic modeling and reverse engineering of pattern and shape regulation. (Funded by the Boehringer Ingelheim Fonds research foundation)*
- 2019 **7<sup>th</sup> Annual Winter Q-Bio Conference**, Oahu, HI. *Cross-inhibited Turing patterns explain the self-organized signaling of planarian fission.*
- 2018 **Meyerhoff Summer Bridge Program**, UMBC, Baltimore, MD. *Computational Systems Biology.*
- 2018 **University of Maryland, Baltimore**, Baltimore, MD. *Computational discovery of cancer signaling, sub-clonal interactions, and optimal treatments.*
- 2018 **Institute of Marine and Environmental Technology**, Baltimore, MD. *Reverse engineering the dynamic regulation of development, cancer, and metabolism.*
- 2017 **Computational Medicine and Bioinformatics Seminar Series**, University of Michigan, Ann Arbor, MI. *Reverse engineering the molecular mechanisms of developmental, cancer, and synthetic biology for predicting novel genes, phenotypes and optimal treatments.*
- 2017 **18<sup>th</sup> International Conference on Systems Biology**, Virginia Tech, Blacksburg, VA. *Automatic Inference of Dynamic Regulatory Networks Controlling Shape and Form.*
- 2017 **Precision Biosciences**, Durham, NC. *Automated discovery of biological dynamic mechanisms from phenotypic data.*
- 2017 **Collegiate Success Institute**, UMBC, Baltimore, MD. *Computational & Systems Biology: discovering biological mechanisms with AI.*
- 2017 **KeyGene at Institute for Bioscience and Biotechnology Research**, Rockville, MD. *Reverse engineering the dynamic mechanisms of biological regulation, signaling, and metabolism.*
- 2016 **Mid-Atlantic meeting of the Society for Developmental Biology**, Howard University, Washington, DC. *Inferring developmental and regenerative dynamic regulatory networks from morphological phenotypes.*
- 2016 **Dept. of Computer Science and Electrical Engineering**, UMBC, Baltimore, MD. *Reverse Engineering of Dynamic Regulatory Networks from Morphological Experimental Data*
- 2016 **Simons Center for Quantitative Biology**, Cold Spring Harbor Laboratory, NY. *Computational discovery of dynamic regulatory networks from experimental phenotypes.*
- 2015 **Third North American Planarian Meeting**, Chicago, IL. *Reverse engineering dynamic regulatory networks of planarian regeneration from experimental resultant phenotypes*
- 2015 **Novartis Institutes for Biomedical Research**, Cambridge, MA. *Inferring regulatory networks from experimental morphological phenotypes*
- 2014 **12<sup>th</sup> Annual Rocky Mountain Bioinformatics Conference**, Aspen, CO. *Automatic discovery of regulatory networks from morphological experimental data.*
- 2014 **Second Annual Boston Data Festival**, Boston, MA. *Mining living organisms: inferring biological models from wet-lab experiments.*

- 2014 **Molecular Joint Meeting Seminar Series**, Tufts University, Medford, MA. *Artificial intelligence for understanding the algorithms of planarian regeneration.*
- 2014 **‘A Dynamic Architecture of Life?’ Workshop**, Academia Nazionale dei Lincei, Rome, Italy. *The encoding and processing of shape information during embryogenesis and regeneration*
- 2014 **Second Biologically Inspired Information Processing Conference**, Medford, MA. *Automated discovery of models of pattern regeneration.*
- 2014 **Boston Data Mining Group**, Cambridge, MA. *Mining the wet lab: automated discovery of models of biological pattern formation.*
- 2013 **Molecular Joint Meeting Seminar Series**, Tufts University, Medford, MA. *Automated discovery of models of pattern formation.*
- 2013 **Second North American Planarian Meeting**, Stowers Institute for Medical Research, Kansas City, MO. *A new bioinformatics of shape: facilitating constructive models of planarian regeneration.*
- 2012 **93<sup>rd</sup> Annual Meeting of the American Association for the Advancement of Science**, Pacific Division, Boise, ID. *A new bioinformatics of shape for regenerative science.*
- 2011 **Center for Regenerative and Developmental Biology**, Tufts University, Medford, MA. *Evolutionary development based on genetic regulatory models.*
- 2010 **Computer Science Department**, University of Malaga, Spain. *Evolutionary development based on genetic regulatory models for behavior-finding.*
- 2009 **Theoretical Computer Science Seminar Series**, Otto-Von-Guericke University, Magdeburg, Germany. *Formal and evolutionary properties in models of multicellular organisms.*
- 2008 **Cornell Computational Synthesis Laboratory**, Cornell University, Ithaca, NY. *Machine metabolism for structure reconfiguration.*
- 2008 **Distributed Robotics Laboratory**, Massachusetts Institute of Technology, Cambridge, MA. *Machine metabolism.*

## Research Mentoring

### Postdoctoral researchers

- 2021-Present **Bivash Kaity**, Postdoctoral Research Associate, UMBC.
- 2021-Present **Andrew Wolff**, Postdoctoral Research Associate, UMBC.

### Ph.D. student researchers

- 2024-Present **Kennedy Davis**, Ph.D. student in Biological Sciences, UMBC.
- 2023-Present **Alexander Maltsev**, Ph.D. student in Biological Sciences, UMBC.
- 2023-Present **Michael Griffith**, Ph.D. student in Biological Sciences, UMBC.
- 2020-Present **Reza Mousavi**, Ph.D. student in Biological Sciences, UMBC.
- 2017-2023 **Jason Ko**, Ph.D. student in Biological Sciences, UMBC.
- 2018-2022 **Archana Hari**, Ph.D. student in Biological Sciences, UMBC. Wolf Dissertation Awardee. Moved to Harvard University as a postdoc.

**M.S. student researchers**

- 2024 **Thomas Duffy**, M.S. student in Applied Molecular Biology.
- 2022-2023 **Brian Boone**, M.S. student in Applied Molecular Biology, UMBC. Moved to Oxford BioDynamics as a Clinical Laboratory Associate.
- 2021-2023 **Alexander Maltsev**, M.S. student in Biological Sciences, UMBC. Continued at UMBC as a Ph.D. student.
- 2021-2022 **Michael Griffith**, M.S. student in Applied Molecular Biology, UMBC. Continued at UMBC as a Ph.D. student.
- 2021-2022 **Ariana Soleimanpour**, M.S. student in Applied Molecular Biology, UMBC. Moved to LGC Biosearch Technologies as a Research Specialist.
- 2021 **Gaby Del Cid**, M.S. student in Applied Molecular Biology, UMBC.
- 2016-2019 **Jeanice Hwang**, M.S. student in Applied Molecular Biology, UMBC. Moved to West Virginia School of Osteopathic Medicine as a D.O. student.
- 2018-2019 **Paak Ng**, M.S. student in Applied Molecular Biology, UMBC. Moved to Meso Scale Diagnostics as an Analyst.
- 2017 **Vikramaditya Battina**, M.S. student in Computer Science, UMBC. Moved to PayPal as a Software Engineer.
- 2016 **Yogendra Jampana**, M.S. student in Information Systems, UMBC. Moved to IQLogg as a Technical Recruiter.
- 2015-2016 **Arjun Kumar**, M.S. student in Computer Science, UMBC. Moved to the Institute for Genome Sciences at University of Maryland, School of Medicine as a Software Engineer.

**Research associates and assistants**

- 2017-2018 **Sri Harsha Konuru**, research associate, UMBC. Moved to AgricxLab as a Software Developer.
- 2017-2018 **Kyle Pickford**, research assistant, UMBC. Moved to Concepts NREC as a Software Engineer.
- 2016 **Neil Agarwal**, research associate, UMBC. Moved to the Department of Energy as an Operations Research Analyst.

**Undergraduate student researchers**

- 2024-Present **Ethan Aidam**, B.S. student in Biomedical Engineering, Harvard University.
- 2024-Present **Dhrithi Saamak**, B.S. student in Bioinformatics and Computational Biology & Biochemistry and Molecular Biology, UMBC.
- 2024-Present **Bart Tolentino**, B.S. student in Bioinformatics and Computational Biology & Biochemistry and Molecular Biology, UMBC.
- 2024-Present **Xander Barton**, U-RISE Scholar, B.S. student in Bioinformatics and Computational Biology, UMBC.
- 2024-Present **Laura Lacambra Troya**, B.A. student in Biochemistry and Molecular Biology, UMBC

- 2023-Present **Sanjana Srimath**, B.S. student in Biological Sciences, UMBC
- 2023-Present **Naveed Naqvi**, B.S. student in Computer Engineering, UMBC.
- 2023-Present **Prajita Shrestha**, B.S. student in Computer Science, UMBC.
- 2023-Present **Sabila Bernard**, B.S. student in Bioinformatics and Computational Biology, UMBC.
- 2023-Present **Kawthar Mahdi**, B.S. student in Biological Sciences, UMBC.
- 2023-Present **Ian Moody**, B.S. student in Bioinformatics and Computational Biology, UMBC.
- 2023-Present **Nicholas Agouridis**, URA Scholar, B.S. student in Computer Science, UMBC.
- 2023-Present **Arveen Zarrabi**, B.S. student in Bioinformatics and Computational Biology, UMBC.
- 2022-Present **Abrar Chaudhry**, URA Scholar, B.A. student in Business Technology Administration, UMBC.
- 2020-2023 **Waverly Reginato**, FWS student, B.S. student in Biochemistry and Molecular Biology, UMBC. Moved to the Naval Sea Systems Command as a Scientist.
- 2022 **Ammar Khawaja**, B.S. student in Computer Science, UMD.
- 2021-2022 **Zainab Siddiqui**, B.S. student in Information Systems, B.A. student in Biological Sciences, UMBC.
- 2020-2022 **Jacob Funk**, B.S. student in Bioinformatics and Computational Biology, UMBC. Moved to The Johns Hopkins University Applied Physics Laboratory as a Software Engineer.
- 2020-2022 **Biniam Teferedegn**, U-RISE Scholar, B.S. student in Bioinformatics and Computational Biology, UMBC.
- 2021-2022 **Firekunmi Ojo**, Meyerhoff Scholar, B.S. student in Mathematics, UMBC.
- 2018-2022 **Teni Ogunsan**, MARC U\*STAR Scholar, Meyerhoff Scholar, B.S. student in Bioinformatics and Computational Biology, UMBC. Moved to Mayo Clinic as a GREP postbac.
- 2019-2021 **Hannah Ramcharan**, MARC U\*STAR Scholar, B.S. student in Bioinformatics and Computational Biology, UMBC. Moved to MIT as a Ph.D. student.
- 2019-2021 **Alizay Rizvi**, URA Scholar, B.S. student in Biological Sciences, UMBC. Moved to the University of Baltimore as a Doctor of Law student.
- 2019-2021 **Noor Shaikh**, URA Scholar, B.S. student in Biological Sciences, UMBC. Moved to the University of Maryland, Baltimore as a PharmD student.
- 2017-2020 **Sophia Hu**, URA Scholar, B.S. student in Bioinformatics and Computational Biology, UMBC. Moved to Carnegie Mellon University as a Ph.D. student.
- 2018-2020 **Kent Taguba**, URA Scholar, B.S. student in Biological Sciences and Computer Science, UMBC. Moved to Raytheon Technologies as a software engineer.
- 2017-2020 **Eric Cheung**, URA Scholar, B.S. student in Biochemistry and Molecular Biology, UMBC.

- 2017-2019 **Joy Roy**, URA Scholar, Maryland Delegate Scholar, B.S. student in Bioinformatics and Computational Biology, UMBC. Moved to Carnegie Mellon University as a Ph.D. student.
- 2016-2019 **Caroline Larkin**, URA Scholar, MARC U\*STAR Scholar, Meyerhoff Scholar, B.S. student in Bioinformatics and Computational Biology, UMBC. Moved to the University of Pittsburgh as a Ph.D. student.
- 2016-2019 **Samantha Herath**, UBM Scholar, Sherman Scholar, B.S. student in Mathematics, UMBC. Moved as a member of the corps of Teach for America and then NASA as an Optical Engineer.
- 2016-2019 **Abraar Muneem**, B.A. student in Biological Sciences, UMBC. Moved to the Penn State College of Medicine as an M.D. student.
- 2016-2019 **Junaid Bhatti**, B.A. student in Biological Sciences, UMBC. Moved to the University of Maryland, School of Medicine as an M.D. student.
- 2018 **David Williams**, Meyerhoff Scholar, B.S. student in Computer Science, UMBC.
- 2017 **Laura Roth**, B.S. student in Bioinformatics and Computational Biology, UMBC. Moved to Personal Genome Diagnostics as a bioinformatician.
- 2016-2017 **Mark Ebeid**, UBM Scholar, B.S. student in Bioinformatics and Computational Biology, UMBC. Moved to Northrop Grumman as a Systems Analyst, then to Carnegie Mellon University as a Ph.D. student.
- 2016-2017 **Mikhail Plungis**, B.S. student in Bioinformatics and Computational Biology, UMBC. Moved to Regeneron as an Analyst.
- 2016 **Saqlain Amin**, B.S. student in Bioinformatics and Computational Biology, UMBC. Moved to Verizon as a DevOps Engineer.
- 2015 **Elizabeth Cardosa**, B.S. student in Biological Sciences, UMBC. Stayed at UMBC as a M.S. student.
- 2014-2015 **Jennifer Hammelman**, B.S. student in Biology and Computer Science, Tufts University. Moved to MIT as a Ph.D. student.
- 2014 **Erica B. Feldman**, B.S. student in Biology, Tufts University. Moved to the University of Miami, Miller School of Medicine as a MD/MPH student.
- 2013 **Michelle Shah**, B.S. student in Biology, Tufts University.
- 2012-2013 **Taylor J. Malone**, B.S. student in Biology, Tufts University. Moved to Yale University as a Ph.D. student.
- 2012 **Hayley A. Weiss**, B.S. student in Computer Science and Biology, Tufts University. Moved to Vecna as a Software Engineer.
- 2012 **Emma M. Marshall**, B.S. student in Biology, Tufts University.
- 2008 **Richard X. Yu**, B.S. student in Computer Science, Cornell University. Moved to Columbia University as a graduate student.
- 2007 **Antonio Gómez**, B.S. student in Computer Science, University of Malaga. Moved to Indra as a Software Engineer.

### Graduate students as committee member



- 2023-Present **Laura Avinyó Esteban**, Ph.D. student, European Molecular Biology Laboratory and University of Barcelona.
- 2021-Present **Elia Mascolo**, Ph.D. student in Biological Sciences, UMBC.
- 2021-Present **Ryan Bacon**, Ph.D. student in Biological Sciences, UMBC.
- 2021-Present **Sean Brown**, Ph.D. student in Biological Sciences, UMBC.
- 2021-Present **Jessica Novak**, Ph.D. student in Biological Sciences, UMBC.
- 2019-Present **Alin Voskarian-Kordi**, Ph.D. student in Biological Sciences, UMBC.
- 2019-2023 **Christopher Mayer-Bacon**, Ph.D. student in Biological Sciences, UMBC. Moved to the U.S. Food and Drug Administration as Pharmaceutical Scientist.
- 2017-2021 **Shuaishuai Liu**, Ph.D. student in Biological Sciences, UMBC. Moved to Hansoh Bio as a research scientist.
- 2016-2021 **Samuel Hulse**, Ph.D. student in Biological Sciences, UMBC. Moved to the University of Maryland, College Park as a postdoc.
- 2017-2020 **Terri Hobbs**, Ph.D. student in Biological Sciences, UMBC.
- 2015-2016 **Patrick O'Neill**, Ph.D. student in Biological Sciences, UMBC. Moved to Tyche Analytics Company as director of science.
- 2015-2016 **Sefa Kilic**, Ph.D. student in Biological Sciences, UMBC. Moved to Google as a research software engineer.
- 2015-2016 **Thomas Peterson**, Ph.D. student in Biological Sciences, UMBC. Moved to the University of California, San Francisco as a postdoc.

### Graduate students as external evaluator

- 2023 **Guillermo López García**, Ph.D. student in Computer Science, University of Malaga.
- 2021 **David Daniel Albarracín Molina**, Ph.D. student in Computer Science, University of Malaga.

### Academic Mentoring

- 2015-Present Academic advisor for +125 undergraduate students majoring in Biological Sciences, Bioinformatics and Computational Biology, or Biochemistry and Molecular Biology, UMBC.
- 2018-2020 **Alida Hartwell**, Hill-Lopes/CNMS Scholar mentee, B.S. student in Bioinformatics and Computational Biology, UMBC. Moved to Latvia with a Fulbright Award.

### Teaching

#### University of Maryland, Baltimore County, Dept. of Biological Sciences

- 2024 Spring **Biol 615 - Systems Biology**, Instructor
- 2024 Spring **Biol 415 - Systems Biology**, Instructor
- 2023 Fall **Biol 700 - Introduction to the graduate experience**, Guest lecturer

2023 Fall **Biol 737 - Research Seminar in Bioinformatics and Computational Biology**, Instructor

2023 Spring **Biol 615 - Systems Biology**, Instructor

2023 Spring **Biol 415 - Systems Biology**, Instructor

2023 Spring **Biol 313 - Introduction to Bioinformatics and Computational Biology**, Instructor

2022 Fall **Biol 700 - Introduction to the graduate experience**, Guest lecturer

2022 Fall **Biol 737 - Research Seminar in Bioinformatics and Computational Biology**, Instructor

2021 Fall **Biol 737 - Research Seminar in Bioinformatics and Computational Biology**, Instructor

2021 Spring **Biol 737 - Research Seminar in Bioinformatics and Computational Biology**, Instructor

2021 Spring **Biol 615 - Systems Biology**, Instructor

2021 Spring **Biol 415 - Systems Biology**, Instructor

2021 Winter **NIH U-RISE Quantitative Methods Workshop - Transcriptomics Analysis with R**, Instructor

2020 Fall **Biol 426/626 - Approaches to Molecular Biology**, Guest lecturer

2020 Fall **Biol 737 - Research Seminar in Bioinformatics and Computational Biology**, Instructor

2020 Spring **Biol 316L - Phage Genome Analysis**, Guest lecturer

2020 Spring **Biol 495/695 - Seminar in Bioinformatics**, Guest lecturer

2020 Spring **Biol 303L - Cell Biology Laboratory**, Guest lecturer

2020 Spring **Biol 737 - Research Seminar in Bioinformatics and Computational Biology**, Instructor

2020 Spring **Biol 313 - Introduction to Bioinformatics and Computational Biology**, Instructor

2020 Spring **Biol 615 - Systems Biology**, Instructor

2020 Spring **Biol 415 - Systems Biology**, Instructor

2019 Fall **Biol 737 - Research Seminar in Bioinformatics and Computational Biology**, Instructor

2019 Spring **Biol 316L - Phage Genome Analysis**, Guest lecturer

2019 Spring **Biol 737 - Research Seminar in Bioinformatics and Computational Biology**, Instructor

2019 Spring **Biol 313 - Introduction to Bioinformatics and Computational Biology**, Instructor

2019 Spring **Biol 615 - Systems Biology**, Instructor

2019 Spring **Biol 415 - Systems Biology**, Instructor

2018 Spring **Biol 495/695 - Seminar in Bioinformatics**, Guest lecturer

2018 Spring **Biol 313 - Introduction to Bioinformatics and Computational Biology**, Guest lecturer

- 2018 Spring **Biol 316L - Phage Genome Analysis**, Guest lecturer
- 2018 Spring **Biol 615 - Systems Biology**, Instructor
- 2018 Spring **Biol 415 - Systems Biology**, Instructor
- 2017 Fall **Biol 700 - Introduction to the graduate experience**, Guest lecturer
- 2017 Spring **Biol 313 - Introduction to Bioinformatics and Computational Biology**, Guest lecturer
- 2017 Spring **Biol 316L - Phage Genome Analysis**, Guest lecturer
- 2017 Spring **Biol 615 - Systems Biology**, New course design and instructor
- 2017 Spring **Biol 415 - Systems Biology**, New course design and instructor
- 2016 Fall **Biol 700 - Introduction to the graduate experience**, Guest lecturer
- 2016 Spring **Biol 313 - Introduction to Bioinformatics and Computational Biology**, Guest lecturer (two lectures)
- 2016 Spring **Biol 316L - Phage Genome Analysis**, Guest lecturer
- 2015 Fall **Biol 410 - Modeling in the Life Sciences**, Guest lecturer

### Tufts University, Dept. of Computer Science

- 2015 Spring **Comp 167 - Introduction to Computational Biology**, Guest lecturer (two lectures)
- 2014 Spring **Comp 167 - Introduction to Computational Biology**, Guest lecturer (two lectures)
- 2013 Spring **Comp 167 - Introduction to Computational Biology**, Guest lecturer (five lectures)

### Service

#### Department Service

- 2023-Present **Undergraduate Program Director**, Bioinformatics and Computational Biology, Dept. Biological Sciences, UMBC
- 2023-Present **Chair, Web & Marketing Committee**, Dept. Biological Sciences, UMBC
- 2023-Present **Member, Undergraduate Committee**, Dept. Biological Sciences, UMBC
- 2020-Present **Member, NIH U-RISE Committee**, Dept. Biological Sciences, UMBC
- 2023 **Member, Third-Year Faculty Review**, Dept. Biological Sciences, UMBC
- 2021-2023 **Member, Executive Committee**, Dept. Biological Sciences, UMBC
- 2015-2023 **Member, Web & Marketing Committee**, Dept. Biological Sciences, UMBC
- 2023 **Member, Five-Year Faculty Review**, Dept. Biological Sciences, UMBC
- 2022-2023 **Member, Lecturer Search Committee**, Dept. Biological Sciences, UMBC
- 2015-2021 **Member, Graduate Committee**, Dept. Biological Sciences, UMBC
- 2019-2020 **Member, Pre-Faculty Search Committee**, Dept. Biological Sciences, UMBC
- 2017-2019 **Member, Executive Committee**, Dept. Biological Sciences, UMBC

#### University Service

- 2023-Present Member, Advisory Board, **Vaccinology Postdoctoral Training Program**, Center for Vaccine Development and Global Health, University of Maryland, School of Medicine, UMB
- 2019-Present Member, **Governance Committee**, High Performance Computing Facility, UMBC
- 2015-Present Member, **Latino and Hispanic Faculty Association**, UMBC
- 2023 Member, **Research Computing Task Force**, UMBC
- 2021, 2023 Member, **Selection Committee**, Strategic Awards for Research Transitions, UMBC
- 2021-2022 Grant Review Expert and Committee Member, **Institute for Clinical and Translational Research (ICTR) Accelerated Translational Incubator Pilot (ATIP) Grant Program**, UMB
- 2018-2021 Member, **Executive Committee**, Latino and Hispanic Faculty Association, UMBC
- 2015-2016 College of Natural and Mathematical Sciences representative, **Race, Equity, and Justice Working Group**, UMBC

### Conference Committees

- 2024 Program Committee Member, **33<sup>rd</sup> Genetic and Evolutionary Computation Conference (GECCO)**, Melbourne, Australia
- 2023 Program Committee Member, **32<sup>nd</sup> Genetic and Evolutionary Computation Conference (GECCO)**, Lisbon, Portugal
- 2022 Chair, Systems Biology Session, **Molecular and Structural Biology Program 2022 Annual Retreat**, Marlene and Stewart Greenebaum Comprehensive Cancer Center, Baltimore, MD
- 2022 Program Committee Member, **31<sup>st</sup> Genetic and Evolutionary Computation Conference (GECCO)**, Boston, USA
- 2021 Program Committee Member, **30<sup>th</sup> Genetic and Evolutionary Computation Conference (GECCO)**, Lille, France
- 2020 Program Committee Member, **6<sup>th</sup> International Conference on Machine Learning, Optimization, and Data Science (LOD)**, Certosa di Pontignano, Italy
- 2020 Program Committee Member, **29<sup>th</sup> Genetic and Evolutionary Computation Conference (GECCO)**, Cancun, Mexico
- 2019 Program Committee Member, **5<sup>th</sup> International Conference on Machine Learning, Optimization, and Data Science (LOD)**, Certosa di Pontignano, Italy
- 2019 Program Committee Member, **2019 Conference on Artificial Life (ALIFE)**, Newcastle upon Tyne, United Kingdom
- 2019 Program Committee Member, **28<sup>th</sup> Genetic and Evolutionary Computation Conference (GECCO)**, Prague, Czech Republic
- 2018 Program Committee Member, **4<sup>th</sup> International Conference on Machine Learning, Optimization, and Data Science (LOD)**, Volterra, Italy
- 2018 Program Committee Member, **2018 Conference on Artificial Life (ALIFE)**, Tokyo, Japan
- 2018 Program Committee Member, **27<sup>th</sup> Genetic and Evolutionary Computation Conference (GECCO)**, Kyoto, Japan

- 2017 Program Committee Member, **3<sup>rd</sup> International Conference on Machine Learning, Optimization, and Big Data (MOD)**, Volterra, Italy
- 2017 Program Committee Member, **14<sup>th</sup> European Conference on Artificial Life (ECAL)**, Lyon, France
- 2017 Co-Organizer, **2017 Mid-Atlantic Regional Meeting of the Society for Developmental Biology**, Baltimore, MD
- 2017 Program Committee Member, **26<sup>th</sup> Genetic and Evolutionary Computation Conference (GECCO)**, Berlin, Germany
- 2016 Program Committee Member, **25<sup>th</sup> Genetic and Evolutionary Computation Conference (GECCO)**, Denver, CO
- 2016 Program Committee Member, **15<sup>th</sup> International Conference on the Simulation & Synthesis of Living Systems (ALIFE)**, Cancun, Mexico
- 2015 Program Committee Member, **24<sup>th</sup> Genetic and Evolutionary Computation Conference (GECCO)**, Madrid, Spain
- 2015 Program Committee Member, **13<sup>th</sup> European Conference on Artificial Life (ECAL)**, York, United Kingdom
- 2014 Program Committee Member, **23<sup>rd</sup> Genetic and Evolutionary Computation Conference (GECCO)**, Vancouver, Canada
- 2014 Program Committee Member, **14<sup>th</sup> International Conference on the Simulation & Synthesis of Living Systems (ALIFE)**, New York, NY
- 2013 Program Committee Member, **22<sup>nd</sup> Genetic and Evolutionary Computation Conference (GECCO)**, Amsterdam, The Netherlands
- 2013 Program Committee Member, **12<sup>th</sup> European Conference on Artificial Life (ECAL)**, Taormina, Italy
- 2012 Awards Committee Member, **93<sup>rd</sup> Meeting of the American Association for the Advancement of Science**, Pacific Division (AAASPC), Boise, ID
- 2012 Program Committee Member, **21<sup>st</sup> Genetic and Evolutionary Computation Conference (GECCO)**, Philadelphia, PA
- 2011 Program Committee Member, **11<sup>th</sup> European Conference on Artificial Life (ECAL)**, Paris, France

### Grant Proposal Reviewer

- 2024 Member (temporary), Modeling and Analysis of Biological Systems Study Section, **National Institutes of Health**
- 2024 Reviewer, Engineering and Physical Sciences Research Council, Artificial Intelligence, **UK Research and Innovation**
- 2024 Reviewer, Panel CE13 Cellular biology, developmental biology and evolution, Appel à projets générique, **French National Research Agency**
- 2023 Member, Special Emphasis Panel 2024/01 ZGM1 TWD-B (KR), NIGMS Pathway to Independence (K99/R00), **National Institutes of Health**
- 2023 Scientific reviewer, Research Program Grants, **The Good Food Institute**

- 2023 Member, Special Emphasis Panel 2023/05 ZGM1 TWD-V (KR), NIGMS Pathway to Independence (K99/R00), **National Institutes of Health**
- 2021 Member, Special Emphasis Panel 2022/01 ZGM1 TWD-7 (KR), NIGMS Pathway to Independence (K99/R00), **National Institutes of Health**
- 2021 Reviewer, Senior Fellowship, **Ctr. International Excellence Alexander von Humboldt, University of Bayreuth**
- 2018 Reviewer, Molecular and Cellular Biosciences, **National Science Foundation**
- 2018 Panelist, Information and Intelligent Systems, **National Science Foundation**
- 2017 Panelist, Information and Intelligent Systems, **National Science Foundation**

### Journal Article Reviewer

|  |   |
|--|---|
| ACM Computing Surveys                                      | Entropy   |
| ACM Transactions on Evolutionary Learning and Optimization | Frontiers in Artificial Intelligence                              |
| Applied Mathematical Modelling                             | IEEE/ACM Transactions on Computational Biology and Bioinformatics |
| Artificial Life  | In Silico Biology   |
| Biochemical and Biophysical Research Communications        | Journal of the Royal Society Interface                            |
| Bioinformatics   | Molecular Systems Biology   |
| Bioinformatics Advances                                    | NAR Genomics and Bioinformatics                                   |
| BioSystems   | Nature Communications   |
| BioTechniques  | NPJ Systems Biology and Applications                              |
| Biotechnology & Bioengineering                             | Nucleic Acids Research  |
| BMC Bioinformatics   | Plant Molecular Biology   |
| Communicative & Integrative Biology                        | PLoS Computational Biology  |
| Complexity   | PLoS ONE  |
| Computer Methods and Programs in Biomedicine               | Science   |
| Development  | Scientific Reports  |
|  | Seminars in Cell & Developmental Biology                          |