

Swami Iyer

 <https://www.cs.umb.edu/~siyer>
 siyer@cs.umb.edu
 github.com/swamiier
 [linkedin.com/in/swami-iyer-3a6b2b113](https://www.linkedin.com/in/swami-iyer-3a6b2b113)
 [youtube.com/channel/UC7V5PTAJQroc9NBunFy1PCg](https://www.youtube.com/channel/UC7V5PTAJQroc9NBunFy1PCg)



My Interests

By day I study how things evolve on complex networks, build things with code and AI, and obsess a little over teaching. By night – and on good days, all the time – I practice presence, read, enjoy good food, listen to and play music, and travel.

Education

- 2013  **PhD**, Computer Science, University of Massachusetts Boston
- 2001  **MS**, Computer Science, University of Massachusetts Boston
- 1996  **BE**, Electronics and Telecommunication, VESIT

Employment History

- 2021 –  **Senior Lecturer I**, Computer Science Department, University of Massachusetts Boston
- 2014 – 2021  **Lecturer**, Computer Science Department, University of Massachusetts Boston
- 2013 – 2014  **Postdoc**, Physics Department, University of Massachusetts Boston
- 2001 – 2006  **Product Developer**, BMC Software
- 1997 – 1998  **Software Engineer**, Tata Interactive Systems

Publications

Books

- 1 B. Campbell, S. Iyer, and B. Akbal-Delibas, *An Introduction to Compiler Construction in a Java World*. CRC Press, 2012.  URL: <https://www.amazon.com/dp/1439860882/>.

Papers

- 1 F. Pourhasanzade, S. Iyer, J. Tjendra, L. Landor, and S. Våge, “Individual-based model highlights the importance of trade-offs for virus-host population dynamics and long-term co-existence,” *PLoS Computational Biology*, vol. 18, no. 6, 2022.  URL: <https://doi.org/10.1371/journal.pcbi.1010228>.
- 2 S. Iyer and T. Killingback, “Evolution of Cooperation in Social Dilemmas with Assortative Interactions,” *Games*, vol. 11, no. 4, 2020.  URL: <https://doi.org/10.3390/g11040041>.
- 3 S. Iyer and T. Killingback, “Evolution of Cooperation in Social Dilemmas on Complex Networks,” *PLoS Computational Biology*, vol. 12, no. 2, 2016.  URL: <https://doi.org/10.1371/journal.pcbi.1004779>.

- 4 S. Iyer and T. Killingback, "Evolutionary Dynamics of a Smoothed War of Attrition Game," *Journal of Theoretical Biology*, vol. 396, pp. 25–41, 2016.  URL: <https://doi.org/10.1016/j.jtbi.2016.02.014>.
- 5 S. Gazda, S. Iyer, T. Killingback, R. Connor, and S. Brault, "Network-based Analysis of Activity Patterns in Bottlenose Dolphins (*Tursiops Truncatus*) in Cedar Key, Florida," *Royal Society Open Science*, vol. 2, no. 3, 2015.  URL: <https://doi.org/10.1098/rsos.140263>.
- 6 S. Iyer and T. Killingback, "Evolutionary Dynamics of the Traveler's Dilemma and Minimum Effort Coordination Games on Complex Networks," *Physical Review E*, vol. 90, no. 4, 2014.  URL: <https://doi.org/10.1103/PhysRevE.90.042134>.
- 7 S. Iyer, J. Reyes, and T. Killingback, "An Application of Evolutionary Game Theory to Social Dilemmas: The Traveler's Dilemma and the Minimum Effort Coordination Game," *PLoS ONE*, vol. 9, no. 4, 2014.  URL: <https://doi.org/10.1371/journal.pone.0093988>.
- 8 S. Iyer, T. Killingback, B. Sundaram, and Z. Wang, "Attack Robustness and Centrality of Complex Networks," *PLoS ONE*, vol. 8, no. 4, 2013.  URL: <https://doi.org/10.1371/journal.pone.0059613>.
- 9 S. Iyer and D. Simovici, "Structural Classification of XML Documents Using Multisets," *International Journal on Artificial Intelligence Tools*, vol. 17, no. 5, pp. 1003–1022, 2008.  URL: https://www.cs.umb.edu/~siyer/research/multisets_long.pdf.
- 10 S. Iyer and D. Simovici, "Multisets and Clustering XML Documents," in *Proceedings of the 19th International Conference on Tools with Artificial Intelligence*, Patras, Greece, 2007.  URL: https://www.cs.umb.edu/~siyer/research/multisets_short.pdf.

Posters

- 1 F. Pourhasanzade, S. Iyer, J. Tjendra, and S. Våge, "Individual-based model highlights the importance of trade-offs in shaping bacteria-phage co-evolutionary dynamics," 2021.  URL: https://www.cs.umb.edu/~siyer/research/aslo_poster1.pdf.
- 2 R. Fiolek, S. Iyer, and T. Killingback, "Complex Network Topologies Resilient to Centrality Attack," 2016.  URL: https://www.cs.umb.edu/~siyer/research/evolving_network_poster.pdf.
- 3 S. Iyer, R. Moray, P. Kulkarni, R. Kulkarni, and K. Zarringhalam, "A Machine Learning Approach for Identifying the PTEN Non-coding ceRNA Network," 2014.  URL: https://www.cs.umb.edu/~siyer/research/terna_poster.pdf.
- 4 S. Gazda, S. Iyer, T. Killingback, R. Connor, and S. Brault, "Network Analysis by Activity Reveals Community Overlap and Differences in Centrality of Individuals in Bottlenose Dolphins (*Tursiops Truncatus*) in Cedar Key, Florida," 2011.  URL: https://www.cs.umb.edu/~siyer/research/dolphins_poster2.pdf.
- 5 C. Ciarfella, S. Gazda, S. Iyer, S. Brault, and T. Killingback, "Residency Patterns and Social Structure of Bottlenose Dolphins," 2010.  URL: https://www.cs.umb.edu/~siyer/research/dolphins_poster1.pdf.

PhD Thesis

- 1 S. Iyer, *Evolutionary Dynamics on Complex Networks*, 2013.  URL: https://scholarworks.umb.edu/doctoral_dissertations/113.

Awards

- 2025  **Distinguished Teaching Award (NTT)**, College of Science and Mathematics, University of Massachusetts Boston
- 2017  **Hjort Scholar Award**, Hjort Centre for Marine Ecosystem, Bergen, Norway
- 2016  **Joseph P. Healey Research Grant**, University of Massachusetts Boston
- 2013  **Outstanding Achievement in Computer Science Award**, University of Massachusetts Boston
- 2007  **Student Leadership Award**, University of Massachusetts Boston

Mentoring

Graduate Students, University of Massachusetts Boston

- 2021  Alexander Zhurkevich. *EFS: An Efficient, Fast, and Scalable Semantic Segmentation Pipeline Using TensorFlow 2.*
- 2017 – 2018  Jason Held. *A Neural Network Model for Classifying Bubble-based Instructor Evaluations, and an Accompanying Web Portal.*
- 2016 – 2017  Jeff Amari, Jason Curran, Divyansh Dhakre, Kinjalk Parmar, Nikhil Sidhwani, and Tory Wheelwright. *Web-based Visualizations of Algorithms.*
- 2007 – 2008  Timothy Cronin, Pragna Gopal, Joelle Skaff, and Keith Wright. *Visual MMIX.*
- 2002 – 2003  Saaid Baraty, Dhriti Dave, Glenn Hoffman, and Madhavi Tolety. *Visual Parser.*

Undergraduate Students, University of Massachusetts Boston

- 2025-2026  Martin Scheele. *Marvin Machine: An Emulated Computer Architecture.*
- 2024  Ethan Luvisia. *Visualizing Music using Music21 and Manim Libraries.*
- 2021  Roy Varon Weinryb. *Detecting Audio with AI.*
- 2020 – 2021  Joyce Quach. *Implementation of Algorithms from Introduction to Compiler Construction in a Java World.*
- 2015 – 2016  Rachel Fiolek. *Complex Network Topologies Resilient to Centrality Attack.*
-  Paola Leon Alarcon. *Effect of Vaccination on Epidemic Spread on Complex Networks.*
- 2013  Kai Ching Lam, Vy Thao Nguyen, Vy Thuy Nguyen, and Matthew H. Santaguida. *Tokanagram - A Jigsaw Puzzle for Nerds.*

Service

Computer Science (CS) Department, University of Massachusetts Boston

- 2026 –  Webmaster
- 2019 – 2021  Paul English scholarship committee
-  Publicity and outreach committee
- 2015 – 2017  Faculty advisor for the CS club
-  Ad-hoc committee to redesign the sign-up software for CS lab accounts
- 2015 – 2019  Student recruitment and retention committee
- 2015 – 2016  Student employment Committee
- 2015 – 2025  Curriculum committee
- 2015  Ad-hoc committee to switch the language of instruction in CS110 from Java to Python

College of Science and Mathematics (CSM), University of Massachusetts Boston

- 2024 –  CSM senate
- 2023 – 2024  College personnel committee for NTT promotions
- 2022 –  SI/LA proposal committee
- 2021 – 2022  Advising, counseling, and supporting committee
- 2019 –  GRE (Math section) workshop for McNair fellows
- 2015 – 2020  CSM scholarship committee

University of Massachusetts Boston

- 2026  Committee for Provost's Award for NTT Faculty Excellence in Teaching
- 2015  Open house event for undergraduates
- 2015, 2022, 2023  Welcome day event for undergraduates