

Hassan Abdallah
Curriculum Vitae
Department of Mathematics
Wayne State University
hassan@wayne.edu

Education

Ph.D. in Mathematics (<i>In Progress</i>), Wayne State University	August 2021 - Present
M.S. Student in Biostatistics, University of Michigan, Ann Arbor	August 2020 - May 2021
M.A. in Applied Mathematics Wayne State University	May 2020
B.S. in Mathematics, Wayne State University	May 2017

Related Employment

Graduate Teaching Assistant Wayne State University, Department of Mathematics	August 2021 - Present
Senior Systems Software Engineer Wayne State University, High Performance Computing	January 2018 - August 2021
High Performance Computing Assistant Wayne State University, Computing & Information Technology	August 2016 - December 2017
Clinical Research Assistant Michigan Spine & Brain Surgeons	August 2015 - March 2016

Technical Skills

Computing Tools
Linux, OpenMP, MPI, PBS, Slurm.

Computer Languages
Extensive experience with R, C++, SQL, bash, Python, and L^AT_EX. Some experience with SAS and Java.

Papers/Preprints

1. **H. Abdallah**, A. Regalski, M. Kang, M. Berishaj, N. Nandi, A. Chowdury, R. Suryadevara, V. Diwadkar, A. Salch. *Statistical Inference for Persistent Homology applied to fMRI*. (2021) In Preparation.
2. A. Salch, A. Regalski, **H. Abdallah**, R. Suryadevara, M. Catanzaro, V. Diwadkar. *From Mathematics to Medicine: A practical primer on topological data analysis (TDA) and the development of related analytic tools for the functional discovery of latent structure in fMRI data*. (2021) Accepted at PLOS One.

3. H. Abdullah, B. Huber, S. Lal, **H. Abdallah**, L. Palese, H. Soltanian-Zadeh, D. Gatti. *CXR-Net: An Artificial Intelligence Pipeline for Quick Covid-19 Screening of Chest X-Rays* (2021) Submitted to IEEE Journal of Biomedical and Health Informatics [Preprint](#).
4. H. Abdullah, B. Huber, S. Lal, **H. Abdallah**, H. Soltanian-Zadeh, D. Gatti. *Lung Segmentation in Chest X-rays with Res-CR-Net* (2020) [Preprint](#).
5. **H. Abdallah**, A. Liyanaarachchi, M. Saigh, S. Silvers, S. Arslanturk, D. Taatjes, L. Larsson, B. Jena, D. Gatti. *Res-CR-Net, a residual network with a novel architecture optimized for the semantic segmentation of microscopy images.* (2020) Machine Learning: Science and Technology **1** [045004](#)

Talks

- *Topological Data Analysis of Time Series Data: Methods and Applications*, Student Math & Applications Seminar, Wayne State University, Detroit, MI, September 2019
- *Introduction to Topological Data Analysis with R in HPC*, Topological Data Analysis course, Wayne State University, Detroit MI, March 2019
- *Identification of vascular substructures with Topological Data Analysis*, San Diego Supercomputing Summer Institute, San Diego, CA, August 2018
- *Fundamentals of High Performance Computing*, Wayne State University, Detroit MI, September 2018

Poster Presentations

- **H. Abdallah**, A. Regalski, M. Berishaj, A. Salch. *A Statistical Procedure for Identifying Persistent Vines*. Algebraic Topology: Methods, Computation, & Science, Ohio State University, June 2020 (Postponed due to COVID-19).
- A. Regalski, **H. Abdallah**, M. Berishaj, M. Kang, A. Salch. *Dynamics of topologically-characterized structures within fMRI signal*. Organization for Human Brain Mapping Annual Meeting, Montreal, Canada, July 2020 (Withdrew due to COVID-19).
- **H. Abdallah**, A. Regalski, M. Berishaj, M. Kang, A. Salch. *Statistical inference from persistent homology of fMRI signals*. Organization for Human Brain Mapping Annual Meeting, Montreal, Canada, July 2020(Withdrew due to COVID-19).

Conferences

- Summer Conference on Topology and its Applications, University of Witwatersrand, July 2019.
- Graduate Student Topology and Geometry Conference, University of Illinois, Urbana Champaign March 2019.
- Supercomputing 18, Dallas TX, November 2018.
- San Diego Supercomputing Summer Institute: HPC and Data Science, University of California, San Diego, August 2018.
- Data Science: Tools and Methods Workshop, Chicago, IL, July 2018.
- Big Data and Business Analytics Symposium, Wayne State University, March 2018.
- Data Science for Social Good Conference, University of Chicago, September 2018.

- Michigan Institute for Data Science Annual Symposium, University of Michigan, Ann Arbor, September 2017.

Awards and Grants

- University of Michigan School of Public Health Tuition Scholarship, Department of Biostatistics, University of Michigan, Ann Arbor, August 2020 - May 2021.
- Robert and Nancy Irvin Endowed Scholarship, In recognition of academic excellence in Master's program. Department of Mathematics, Wayne State University, April 2020.
- National Science Foundation Travel Grant, \$2500. Funding to attend Summer Conference on Topology and its Applications. Johannesburg South Africa, July 2020.
- National Science Foundation Travel Grant, \$400. Funding to attend Graduate Student Topology and Geometry Conference. Champaign IL, March 2019.