

Krithika Iyer

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RESEARCH INTERESTS

Statistical Shape Modeling, Probabilistic Modeling, Machine & Deep Learning, Medical Image Analysis, Computer Vision

EDUCATION

Ph.D. in Computing (Image Analysis) at University of Utah Aug 2019 — Aug 2024 (expected)
Advisor: [Dr. Shireen Elhabian](#) GPA: 4.00

M.S in Computing at University of Utah Aug 2017 — Aug 2019
Dropped due to being transferred to the Ph.D. program GPA: 4.00

B.E in Electronics and Telecommunication at University of Pune Aug 2011 — May 2015
Maharashtra Institute of Technology

EMPLOYMENT

Graduate Research Assistant, Scientific Computing and Imaging Institute June 2020 — Present
At the [Elhabian Lab](#), the focus of my research is probabilistic modeling and machine learning for medical image analysis and statistical shape modeling.

- Contribute to the development of ShapeWorks, open-source software for state of art statistical shape modeling and analysis.
- Collaborate with clinicians from the cardiology and orthopedic department for shape modeling research.
- Offer support and mentorship to junior colleagues in the lab.

Graduate Research Assistant, Scientific Computing and Imaging Institute Jan 2019 — May 2020
Collaborative interdisciplinary materials science project with Idaho National Labs, guided by [Dr.Tolga Tasdizen](#).

- Developed an innovative combinatorial framework of molecular dynamics and machine learning that explores a large chemical-configurational space to evaluate mechanical properties of multi-component alloys
- Initiated the development of the dataset for atomistic simulations.

Research & Development Intern, Zions Bancorporation, Utah May 2018 — Aug 2018
Quantitative Analysis: Deposit Runoff Modeling and Customer Attrition Modeling.

- Developed machine learning models for the bank to better predict attrition probabilities of deposit accounts.
- Built a general machine learning pipeline that improves the efficiency of performing exploratory data analysis for a range of projects.

Associate System Engineer, IBM-Global Business Services India Dec 2015 — July 2017
Business Data Analytics and Data Warehousing

- Worked with ETL Data manager, COGNOS- Business Intelligence, and Oracle DB
- Handled identity management issues concerning LDAP, SiteMinder, and Active Directory.

TEACHING

University of Utah

- **Advanced Image Processing**, Graduate Teaching Assistant Spring 2024
- **Image Analysis Seminar**, Graduate Teaching Assistant Spring 2022
- **Image Processing**, Graduate Teaching Mentorship Fall 2021
- **Computer Graphics**, Graduate Teaching Mentorship Fall 2019

- **Applied Machine Learning**, Graduate Teaching Assistant Fall 2018

University of Pune

- **Digital Communication**, Teaching Assistant Fall 2015

PUBLICATIONS

Conference

- **Mesh2SSM: From Surface Meshes to Statistical Shape Models of Anatomy** Iyer, Krithika, Elhabian, Shireen. *Early accept at International Conference of Medical Image Computing and Computer Assisted Interventions (MICCAI) 2023*

Journal

- **Statistical Shape Modeling of Multi-Organ Anatomies with Shared Boundaries: A Data-Driven Approach** Iyer, Krithika and Morris, Alan and Zenger, Brian and Karnath, Karthik and Nawazish Khan and Orkild, Benjamin A and Korshak, Oleksandre and Elhabian, Shireen. *Frontiers in Bioengineering and Biotechnology 10 (2022)*
- **All Roads Lead to Rome: Diverse Etiologies of Tricuspid Regurgitation Create a Predictable Constellation of Right Ventricular Shape Changes** Orkild, Benjamin A and Zenger, Brian * and Iyer, Krithika* and Rupp, Lindsay C and Ibrahim, Masjid M and Khashani, Atefeh G and Perez, Maura D and Foote, Markus D and Bergquist, Jake A and Morris, Alan K and others. *Frontiers in Physiology 1092 (2022)*
- **Benchmarking Off-the-shelf Statistical Shape Modeling Tools in Clinical Applications** Goparaju, Anupama and Iyer, Krithika and Bone, Alexandre and Hu, Nan and Henninger, Heath B and Anderson, Andrew E and Durrleman, Stanley and Jacxsens, Matthijs and Morris, Alan and Csecs, Ibolya and Marrouche, Nassir and Elhabian, Shireen Y. *Medical Image Analysis 76 (2022): 102271*.
- **Integrating atomistic simulations and machine learning to design multi-principal element alloys with superior elastic modulus.** Grant, Michael and Kunz, M Ross and Iyer, Krithika and Held, Leander I and Tasdizen, Tolga and Aguiar, Jeffery A and Dholabhai, Pratik P. *Journal of Materials Research 37, 1497–1512 (2022)*

Workshops

- **ADASSM: Adversarial Data Augmentation in Statistical Shape Models From Images** Karanam, Mokshagna Sai Teja and Kataria, Tushar and Iyer, Krithika and Elhabian, Shireen. *Workshop on Shape in Medical Imaging (ShapeMI) at MICCAI 2023*
- **Statistical Shape Modeling of Biventricular Anatomy with Shared Boundaries** Iyer, Krithika and Morris, Alan and Zenger, Brian and Karnath, Karthik and Orkild, Benjamin A and Korshak, Oleksandre and Elhabian, Shireen. *International Workshop on Statistical Atlases and Computational Models of the Heart (STACOM) at MICCAI 2022*

Pre-print

- **Relevance Encoding Networks: RENs** Iyer, Krithika and Bhalodia, Riddhish, Elhabian and Shireen. *arxiv*

LEADERSHIP

Society of Women Engineers

2021 - Present

- Served as president of GradSWE at University of Utah (2022)
- Activities and communications chair of GradSWE at University of Utah (2021,2023)

ACADEMIC SERVICE

Conference Reviewer

- International Conference of Medical Image Computing and Computer Assisted Interventions (MICCAI) 2023

Journal Reviewer

- IEEE Transactions on Circuits and Systems for Video Technology 2023

Community

- Judge at University of Utah Science and Engineering Fair 2022.

AWARDS

- Manager's Choice Award for the practice of *Put the Client First & Show Personal Interest* values of IBM, 2016
- *Consistently High Academic Performance* award at Maharashtra Institute of Technology, University of Pune, 2015.

SKILLS

- **Programming:** Python, MATLAB, R, C++, Javascript (most to least proficiency)
- **Packages:** Tensorflow, Pytorch, Pytorch3D, Pytorch Geometric, NumPy, SciPy, Scikit-Image, Matplotlib, Pandas, PyVista
- **Tools:** ParaView, VTK, ITK,

REFERENCES

Dr. Shireen Elhabian

Associate Professor, Kahlert School of Computing, University of Utah

E-mail: shireen@sci.utah.edu

Dr. Tolga Tasdizen

Professor, Scientific Computing and Imaging Institute, University of Utah

E-mail: tolga@sci.utah.edu

LINKS

Website: <http://www.sci.utah.edu/iyerkrithika/>

Google Scholar: [Krithika Iyer's Profile](#)