Vishal Sharma

Education & Training

Postdoctoral Research Fellow - Harvard Ophthalmology AI Lab — 2021 - 2022
Harvard University, Massachusetts, USA
Research: AI in Ophthalmology
Mentor: Mengyu Wang, PhD (Assistant Professor, Harvard Medical School/MEEI)

Doctor of Philosophy, **Computer Science** — 2016 - 2021 | 4.0
Utah State University, Utah, USA
Dissertation: Deep Learning Data and Indexes in a Database (over 1,000 downloads)
Advisor: Curtis Dyreson, PhD (Professor)

Master of Science, **Computer Science** — 2012 - 2014 | 3.91
Utah State University, Utah, USA
Thesis: MultiverseJava<temporal>: Programming Databases with Interesting Values
Advisor: Curtis Dyreson, PhD (Professor)

Bachelors of Technology, **Computer Science and Engineering** — 2006 - 2010 | 8.24
S.R.M. Institute of Science and Technology, India (ranked 24 by the Ministry of Education, 2022)

Academic Positions

Assistant Professor, Computer Science - New York Institute of Technology (NYIT) — 2023 - Present
Research Associate/Scientist - Cincinnati Children's — 2022 - 2023

Research Interests

1) Machine learning for systems: *(i)* towards self managing databases, *(ii)* intelligent compilers
2) Medical imaging: *(i)* early and improved diagnostics, *(ii)* novel dimension reduction for visualization
3) Data mining: *(i)* collecting data and extracting information, *(ii)* answering compelling questions

Industry Positions

Research Intern - Intel — Summer 2019
- Derivative-free combinatorial optimization with meta-heuristics
- An optimization algorithm overlapping genetic algorithm and particle swarm
- *Mentor*: Don Kent (Senior Manager Data Science)

Data Scientist Intern - IM (Intel Micron) Flash — Summer 2018
- Convolution Neural Network based real-time silicon wafer defect detection with 87% in production accuracy
- It saves IM (Intel Micron) Flash ~$100,000/day
- *Mentor*: Pradeep Ramachandran (Senior Member of Technical Staff)

Senior Software Engineer - InMoment — 2015 - 2016
- Full-Stack engineer on feedback listening framework, cloud-based customer experience (CX) platform
- Real-time feedback listening using Natural Language Processing (NLP) techniques
- Immense experience working on large datasets and using big data technologies

Software Engineer - McAfee — 2014 - 2015
- Anomaly detection using density-based spatial clustering of applications with noise (DBSCAN)
- Designing and building a Correlation-Engine (CE) powered with NLP techniques for extracting security incidents from various logs

Software Engineer - Tata Consultancy Services — 2010 - 2012
- Key role in performance improvement by refactoring bad performing code, database queries, and stored procedures with significant performance improvement for *The Nielson Company*

Teaching Experience

2019	Teaching Assistant	Ph.D. & Masters	Advanced Database Systems
2017 - 2018	Teaching Assistant	Masters & Undergrad	Introduction to Database
2016	Teaching Assistant	Masters & Undergrad	Introduction to Data Science
2013	Teaching Assistant	Undergrad	Introduction to Programming Languages
2012	Teaching Assistant	Undergrad	Introduction to Computer Organization Architecture

Publications

[9] **Indexer++: Workload-Aware Online Index Tuning with Transformers and Reinforcement Learning**
Vishal Sharma, Curtis Dyreson
37^{th} *ACM SIGAPP Symposium on Applied Computing*, SAC 2022 (AR: 22%)

[8] **Mantis: Multiple Type and Attribute Index Selection using Deep Reinforcement Learning**
Vishal Sharma, Curtis Dyreson, Nicholas Flann
25^{th} *ACM International Database Engineering & Applications Symposium*, IDEAS 2021 (AR: 28%)

[7] **Popularity vs Quality: Analyzing and Predicting the Success of Highly Rated Crowdfunded Projects on Amazon**
Vishal Sharma, Kyumin Lee, Curtis Dyreson
Springer Computing, 2021 (IF: 3.7)

[6] **Automating and Analyzing Whole-Farm Carbon Models**
Aditi Maheshwari, Curtis Dyreson, Jennifer Reeve, Vishal Sharma, Anthony Whaley
7^{th} *IEEE International Conference on Data Science and Analytics*, DSAA 2020 (AR: 26.5%)

[5] **Covid-19 Screening Using Residual Attention Network an Artificial Intelligence Approach**
Vishal Sharma, Curtis Dyreson
19^{th} *IEEE International Conference on Machine Learning and Applications*, ICMLA 2020 (AR: 25%)

[4] **LinkSocial: Linking User Profiles Across Multiple Social Media Platforms**
Vishal Sharma, Curtis Dyreson
8^{th} *IEEE International Conference on Big Knowledge, ICBK (in conjunction with ICDM)* 2018 (AR: 27%)

[3] **Predicting Highly Rated Crowdfunded Products**
Vishal Sharma, Kyumin Lee
10^{th} *IEEE/ACM Advances in Social Networks Analysis and Mining*, ASONAM 2018 (AR: 16%)

[2] **Recommending Prime Spots of a Destination and Time to Visit from Geo-tagged Social Data**
Vishal Sharma, Kyumin Lee, Jinwook Chung
10^{th} *IEEE International Conference on Collaborative Computing: Networking, Applications and Worksharing*, CollaborateCom 2014 (AR: 28%)

[1] **Supporting data aspects in pig latin**
Curtis Dyreson, Omar U. Florez, Akshay Thakre, Vishal Sharma
12^{th} *ACM Aspect-oriented Software Development*, AOSD 2013 (AR: 25%)

Abstracts & Preprint

[9] **A Deep Autoencoder Model to Denoise Visual Fields in Glaucoma**
Vishal Sharma, Lucy Q Shen, Louis Pasquale, Tobias Elze, Michael V Boland, Sarah R Wellik, Gustavo De Moraes, Jonathan S Myers, Siamak Yousefi, Mengyu Wang
Association for Research in Vision and Ophthalmology, ARVO 2022 (IF: 2.39)

[8] **PyVisualFields: A Python Package for Visual Field Analysis**
Mohammad Eslami, Saber Kazeminasab, Vishal Sharma, Yangjiani Li, Mojtaba Fazli, Mengyu Wang, Nazlee Zebardast, and Tobias Elze
Translational Vision Science & Technology, TVST, ARVO, 2022 (IF: 3.28)

[7] **A Python Collection of Tools for Analyzing Visual Fields**
Saber Kazeminasab, Mohammad Eslami, Yangjiani Li, Mojtaba Fazli, Vishal Sharma, Mengyu Wang, Nazlee Zebardast, Tobias Elze
Association for Research in Vision and Ophthalmology, ARVO 2022 (IF: 2.39)

[6] **Evaluation of Deep Learning Visual Field Prediction Models for Clinical Relevance**
Mohammad Eslami, Miao Zhang, Julia Kim, Dolly Chang, Yangjiani Li, Saber Kazeminasab, Mojtaba Fazli, Vishal Sharma, Michael Boland, Nazlee Zebardast, Mengyu Wang, Tobias Elze
Association for Research in Vision and Ophthalmology, ARVO 2022 (IF: 2.39)

[5] **Glaucomatous Progressive Retinal Nerve Fiber Layer Thinning and Its Association With Patient Race**
Qingying Jin, Omar Halawa, Yangjiani Li, Mohammad Eslami, Saber Kazeminasab, Mojtaba Fazli, Vishal Sharma, Nazlee Zebardast, Mengyu Wang, Tobias Elze
Association for Research in Vision and Ophthalmology, ARVO 2022 (IF: 2.39)

[4] **The Impact of Race on the Relationship Between Cup-To-Disc Ratio and Glaucomatous VF Los**
Pingping Zhao, Yangjiani Li, Mohammad Eslami, Saber Kazeminasab, Mojtaba Fazli, Vishal Sharma, Omar Halawa, Nazlee Zebardast, Mengyu Wang, Tobias Elze
Association for Research in Vision and Ophthalmology, ARVO 2022 (IF: 2.39)

[3] **Speaker Diarization: Using Recurrent Neural Networks**
Vishal Sharma, Zekun Zhang, Zachary Neubert, Curtis Dyreson
⋆ *In 2017, we formulate the problem of speaker diarization with deep learning*
arXiv:2006.05596, preprint, 2020

[2] **Multi Class Audio Classification Using Multi Layer Perceptron and Convolution Neural Network**
Vishal Sharma
https://doi.org/10.5281/zenodo.3988690, Github, 2020

[1] **The Multiverse Programming Paradigm: Programming with Values Annotated with Metadata**
Vishal Sharma, Curtis Dyreson
Graduate Research Symposium, Utah State University, 2014

Academic Service & Leadership

2022	Program Committee	Review of Hypermedia and Multimedia (NRHM)
2022	Technical PC	8^{th} International Conference on Human and Social Analytics
2021	Program Committee	IEEE BIBM Artificial Intelligence Techniques for BioMedicine and Health
2021	Technical PC	7^{th} International Conference on Human and Social Analytics
2020	Program Committee	IJCAI Artificial Intelligence in Affective Computing (AffComp)
2020	Program Committee	IEEE BIBM Artificial Intelligence Techniques for BioMedicine and Health
2020	Program Committee	IEEE BIBM Artificial Intelligence & Big Data vs Pandemics
2020	Technical PC	6^{th} International Conference on Human and Social Analytics
2019	Search Committee	Serving on faculty search committee as PhD student for Computer Science, USU
2019	Technical PC	5^{th} International Conference on Human and Social Analytics
2018	Session Chair	ACM/IEEE ASONAM
2017	External Reviewer	KDD, WWW, CIKM, PAKDD, ICWSM, ACM CHI
2014	Student Volunteer	ACM SIGMOD

Recognition & Grants

2022	ARVO foundation travel grant, Denver, CO
2019	2 x kaggle competition bronze (competition expert: top 2%)
2018	Graduate research and creative opportunity (GRCO) grant, Utah State University (USU)
2018	School of graduate studies, travel grant, Utah State University (USU)
2015	Editor's pick award: NBA Fan app in windows store with >250k downloads
2014	Hackathon award: first prize for best system design at Code-A-Thon by ACM USU

Invited Talks

2022	ACM SIGAPP Symposium On Applied Computing (SAC), Czech Republic
2021	ACM International Database Engineering & Applications Symposium (IDEAS), Montreal
2020	IEEE International Conference on Machine Learning and Applications (ICMLA), Miami
2018	IEEE International Conference on Big Knowledge (ICBK/ICDM), Singapore
2018	IEEE International Conference on Advances in Social Networks Analysis & Mining (ASONAM), Barcelona
2013	How to Succeed as a Plan A MS student? Graduate School, Utah State University