

Shivang Chopra

MSCS Student at Georgia Institute of Technology

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EDUCATION

Georgia Institute of Technology

Aug 2022 - Dec 2024 (expected)

Master of Science in Computer Science, Specialization: Machine Learning

CGPA: 4.0/4.0

Publications: CoRL [1], ICASSPW [2], ICML (Under Review) [3], ECCV (Under Review) [4]

Delhi Technological University

Aug 2016 - May 2020

Bachelor of Technology in Computer Engineering

CGPA: 8.62/10.0

Publications: AAAI 2020 [5], ECIR 2020 [6], ECAI 2020 [7], IEEE CDS [8], IEEE BigMM [9]

WORK EXPERIENCE

Sony R&D Labs

Zurich, Switzerland

Computer Vision Research Intern

Sep 2023 - Apr 2024

Mentor: Valentina Cavinato [🔗](#)

Project: Ball tracking and spin estimation using Event-based Vision Sensors (EVS)

- * Developed a module to perform motion compensation for the relative motion between the ball and sensor.
- * Developed modules to automatically optimize EVS simulator parameters to reduce the sim2real domain shift.

Amazon Science Seattle

Washington, USA

Applied Scientist Intern

May 2023 - Aug 2023

Mentor: Dr. Tarang Chugh [🔗](#)

Project: Product ranking system for newly onboarded products on Amazon.com

- * Worked on a product ranking module to determine the sales potential of newly onboarded products on Amazon.com.
- * Developed modules that analyzed product attributes, and virality to predict expected sales potential of products.

Microsoft Research Lab India

Bangalore, India

Research Intern

May 2022 - Aug 2022

Mentor: Dr. Venkat Padmanabhan [🔗](#)

Project: Enabling Unstructured Conversations in the Hybrid Workspaces. Published at UbiComp 2023 (IMWUT) [10]

- * Worked on the directional audio module of the system to improve accessibility for people with visual impairment.
- * Refactored and optimized the frontend and backend code and redesigned the server architecture.

University of Texas, Dallas

Virtual

Research Intern

Mar 2022 - July 2022

Advisor: Dr. Rishabh Iyer [🔗](#)

Project: Unknown class data discovery using Active Learning. Paper published at Real ML workshop at ICML 2022 [11]

- * The project aims at handling data imbalance where the rare instances are completely absent from the training data,
- * Used a Submodular Information (SMI)-based Active Learning Approach for unknown class data discovery.

University of Pennsylvania

Virtual

Research Intern

July 2021 - Dec 2021

Advisor: Dr. Robert Faryabi [🔗](#)

Project: Cancer-causing gene detection in fluorescence in-situ hybridization (FISH) images using FRCNN.

- * Implemented a UNet-based approach to segment chromosomes in the nuclei of each cell.
- * Finetuned an FRCNN model to detect cancer-causing gene sequences in stained DNA sequences (chromosomes).

CodeNation Innovation Labs

Bangalore, India

Software Development Engineer

Aug 2020 - Apr 2022

Project: Cab ride-sharing application for iOS and Android ([iOS App](#), [Android App](#))

- * Worked on the dynamic pricing model based on the local supply and demand of cabs near the user.
- * Developed and deployed Android and iOS applications to facilitate ride-sharing in real-time.

IBM Research Lab

Delhi, India

Research Intern

June 2020 - Aug 2020

Mentor: Dr. Sameep Mehta [🔗](#)

Project: Real-time explicit content detection in videos. ([Project Report](#))

- * Developed a multi-modal system for storyline-preserving explicit content detection in OTT content.
- * Developed a Javascript-based Chrome extension to facilitate the isolation of explicit content in real-time.

IIIT Delhi

Delhi, India

Research Intern

Aug 2019 - May 2020

Advisor: Dr. Rajiv Ratn Shah [🔗](#)

Projects:

- * Hate speech detection in code-mixed languages. Full paper published at AAAI 2020 [5].
 - Incorporated Graph Convolutional modeling for hate speech detecting in Hindi-English code mixed tweets.
- * Suicidal Ideation Detection on Twitter. Short paper published at ECIR 2020 [6].
 - Incorporated historical user profiling and graph convolutional modeling for suicidal intent detection.

SELECTED PROJECTS

AI Through Symbiosis (Published at ICASSPW 2023 [2])

Advisor: Dr. Thad Starner [✉](#) (Georgia Institute of Technology)

- The project aims to use a Heads-Up display to optimize the picking process in an assembly line.
- Developed generalized algorithms for hand detection and object detection in egocentric videos.

Imitation Learning from Suboptimal Demonstrations. (Published at CORL 2023 [1])

Advisor: Dr. Danfei Xu [✉](#) (Georgia Institute of Technology)

- The project aims at estimating the quality of demonstrations by using an Inverse Reinforcement Learning model.
- Using the estimated quality to boost the performance of imitation learning algorithms like Behavioral Cloning.

AWARDS AND RECOGNITIONS

Graduate Student Scholarship , Georgia Institute of Technology	2023,2024
Research Excellence Award, Delhi Technological University	2020
Student Research Travel Grant, Microsoft Research India	2020
Student Scholarship, AAI	2020

COURSEWORK

Master Of Science: Machine Learning, Vision Language Models, Deep Learning for Robotics, Game AI, Natural Language Processing, Online Communities

Bachelor of Technology: Machine Learning, Artificial Intelligence, Natural Language Processing, Big Data Analytics, Operating Systems, Database Management Systems, Compiler Design, Computer Networks, Software Engineering

TECHNICAL SKILLS

Working Knowledge	Bash, C/C++, Python, MATLAB, OpenCV
Software & Tools	GNU/Linux, HTML, CSS, JavaScript, LaTeX, Excel
Deep Learning Frameworks	PyTorch, TensorFlow, Keras, Caffe
Past Experience	Java, Kotlin, OpenGL, WebGL, Swift, Web2py, Android-SDK

PUBLICATIONS

- [1] S. Kuhar, S. Cheng, S. Chopra, M. Bronars, and D. Xu, "Learning to discern: Imitating heterogeneous human demonstrations with preference and representation learning," in *Proceedings of The 7th Conference on Robot Learning*, ser. Proceedings of Machine Learning Research, 2023. ([Paper](#))
- [2] Z. M. Chng, C. Tang, D. Krishnaswamy, H. Yang, S. Chopra, J. Womack, and T. Starner, "Symbiotic artificial intelligence: Order picking and ambient sensing," in *2023 IEEE International Conference on Acoustics, Speech, and Signal Processing Workshops (ICASSPW)*, 2023. ([Paper](#))
- [3] S. Chopra, S. Kothawade, H. Aynaou, and A. Chadha, "Source-free domain adaptation with diffusion-guided source data generation," 2024. ([Paper](#))
- [4] S. Lakhanpal, S. Chopra, V. Jain, A. Chadha, and M. Luo, "Refining text-to-image generation: Towards accurate training-free glyph-enhanced image generation," 2024. ([Paper](#))
- [5] S. Chopra, R. Sawhney, P. Mathur, and R. Ratn Shah, "Hindi-english hate speech detection: Author profiling, debiasing, and practical perspectives," *Proceedings of the AAI Conference on Artificial Intelligence*, 2020. ([Paper](#))
- [6] P. Mathur, R. Sawhney, S. Chopra, M. Leekha, and R. Ratn Shah, "Utilizing temporal psycholinguistic cues for suicidal intent estimation," in *Advances in Information Retrieval: 42nd European Conference on IR Research, ECIR*. Springer International Publishing, 2020. ([Paper](#))
- [7] G. Jain, S. Chopra, S. Chopra, and S. P. Anil, "Transsketchnet: Attention-based sketch recognition using transformers," in *Frontiers in Artificial Intelligence and Applications: European Conference on Artificial Intelligence, ECAI*, 2020. ([Paper](#))
- [8] G. Jain, S. Chopra, S. Chopra, and A. S. Parihar, "Attention-net: An ensemble sketch recognition approach using vector images," *IEEE Transactions on Cognitive and Developmental Systems*, 2022. ([Paper](#))
- [9] S. Singal, T. Goel, S. Chopra, and S. Dahiya, "Open domain suggestion mining leveraging fine-grained analysis (workshop paper)," in *2020 IEEE Sixth International Conference on Multimedia Big Data (BigMM)*, 2020. ([Paper](#))
- [10] H. Vijay, S. Pushp, A. Mittal, P. Gupta, M. Gupta, S. Gambhira, S. Chopra, M. Baranwal, A. Arya, A. Manchepalli, and V. N. Padmanabhan, "Hyway: Enabling mingling in the hybrid world," *Proceedings of ACM Interact. Mob. Wearable Ubiquitous Technol., IMWUT*, 2023. ([Paper](#))
- [11] S. Kothawade, S. Chopra, S. Ghosh, and R. Iyer, "Active data discovery: Mining unknown data using submodular information measures," *RealML Workshop in the International Conference of Machine Learning, ICML*, 2022. ([Paper](#))