Saksham Singh Kushwaha Website: https://sakshamsingh1.github.io/
Research Area : ***Computer Vision, (Spatial) Audio, Multimodal*** Email : sxk230060@utdallas.edu

Education

- **The University of Texas at Dallas** May 2027 (expected)
  Ph.D. - Computer Science (Advisor: Dr. Yapeng Tian) *GPA: 4.0/4.0*
- **New York University, Courant** May 2023
  M.S. - Computer Science *GPA: 3.95/4.0*
- **Indian Institute of Technology, Delhi** May 2018
  B.Tech - Mathematics and Computing *GPA: 7.97/10.0*

Experience

- **Dolby Laboratories | PhD Research Intern** May 2024 - Aug 2024
  Worked in Advanced Technology Group (ATG) to develop approaches for spatial audio generaton *SF, USA*
  - Proposed a novel task and a flow-matching generative approach for ambisonics generation from scratch.
  - Outperformed traditional baselines on objective (FAD$\sim$ 72%) and subjective metrics (Fidelity$\sim$60%).
- **Nvidia | Deep Learning Intern** May 2022 - Aug 2022
  Worked in Product Security team to efficiently detect anomalous user-behavior in AWS accounts *Remote, USA*
  - Developed and implemented a **multi-task autoencoder** that replaced up to 10 production models.
  - Improved existing intrusion detection system by 65% (F-score) and reduced false positives by 50%
- **Zomato | Machine Learning Engineer II** July 2018 - April 2021
  Part of Search, User personalization, and Logistics teams *Gurgaon, India*
  - Improved auto-suggestion search by 10% avg. rank, 4% CTR & 2% OTR using **point-wise ML** model
  - Created DQN **RL** based rider dispatch service, improving next order time(3min) & order probability(9%)
  - Developed similar restaurants service by creating restaurants' embedding using modified **Word2Vec**

Publications

- VinTAGe: Joint Video and Text Conditioning for Holistic Audio Generation (paper), (project page), (demo)
  Saksham S. Kushwaha, Yapeng Tian [Under review]
- *Diff-SAGe: End-to-end **spatial audio generation** using diffusion models (paper), (project page), (demo)*
  *Saksham S. Kushwaha, Jianbo Ma, Mark Thomas, Yapeng Tian, Avery Bruni [**ICASSP**, 2025]*
- *Audio-Visual Dataset Distillation (paper), (slides), (video)*
  *Saksham S. Kushwaha, Siva Vasireddy, Kai Wang, Yapeng Tian [**TMLR**, 2024]*
- *A **multimodal prototypical** approach for **unsupervised** sound classification (paper)*
  *Saksham S. Kushwaha, Magdalena Feuentes [**INTERSPEECH** 2023]*
- ***Sound source distance estimation** in diverse and dynamic acoustic conditions (paper)*
  *Saksham S. Kushwaha, Iran Roman, Magdalena Feuentes, Juan Pablo Bello [**WASPAA** 2023]*
- *Analyzing the effect of equal-angle spatial discretization on **sound event localization & detection** (paper)*
  *Saksham S. Kushwaha, Iran R. Roman, Juan Pablo Bello [**DCASE** Workshop 2022]*

Academic Experience

- **Invited talks**: DL-MIR Workshop, Stanford University (slides)
- **Reviewer**: MLSP 2023, AAAI-24, ICASSP-24, NIPS-24, ACMMM-24, ICLR-25
- **Research Assistant**: Prof. Magdalena Fuentes (multimodal deep learning) [Aug'22-May'23], Prof. Raveesh Mayya (ML for digital policy change) [Aug'21-July'22], Prof. Yapeng Tian [Aug'24-Present]
- **Teaching Assistant**: Intro to python programming (Prof. Junpei Komiyama) [Jan'22-May'22], Discrete Mathematics (Prof. Simeon Ntafos) [May'23-Aug'23], Computer Science I (Prof. Scott Dollinger) [May'23-Aug'23]