Ankush Pratap Singh

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Google Scholar

Education

New York Institute of Technology **New York, US**
PhD in Computer Science, CGPA 4.0/4.0 *Sept 2024 - Present*

New York University **New York, US**
Master of Science in Computer Engineering, CGPA 3.87/4.0 *Sept 2021 - May 2023*

Netaji Subhas Institute of Technology **New Delhi, India**
Bachelor of Engineering in Instrumentation and Control, CGPA 3.60/4.0 *Aug 2013 – June 2017*

Research Experience

PhD Researcher, New York Institute of Technology, New York, USA Sept 2024 – Present

Project: Multimodal Interaction Learning for Emotion Recognition and Reasoning

- Advancing multimodal learning techniques for emotion recognition and reasoning, with a focus on modeling cross-modal interactions, information decomposition, and curriculum-based training strategies to improve generalization across heterogeneous modalities.
- Designing and validating experimental frameworks to characterize sample and interaction difficulty, and developing adaptive training strategies that evolve with model learning state.
- Collaborating with research groups at New York University, contributing to a multi-institutional effort for human-centered multi sensory AI applications.

Research Assistant, Ai4CE Lab, New York University, New York, USA Sept 2022 – Oct 2023

Project: Human-Inspired Summarization: Cluster Scene Videos into Diverse Frames
(Accepted for Oral Presentation ICCVW 2025)

- Developed a self-supervised contrastive learning framework to summarize large-scale scene datasets by selecting representative images that maximize spatial diversity and coverage of scenes.
- Performed comparative analyzes of established video summarization methods using the Habitat and KITTI datasets, showcasing the benefits of spatially diverse summarization.
- Engaged in the entire research cycle, including dataset design, preprocessing, model development, performance evaluation, and drafting and revising the research paper.

Researcher Assistant, Video Lab, New York University, New York, USA Sept 2022 – May 2023

Project: Segmenting Metastatic Brain Tumors Using Deep Learning (M.S. Thesis)

- Investigated deep neural network architectures for medical image segmentation, focusing on metastatic brain tumors using the NYUMets dataset.
- Proposed and evaluated temporal-aware segmentation methods by enhancing UNet with LSTM and Transformer based modules to capture sequential image dependencies, demonstrating the advantages of spatio-temporal modeling for medical imaging tasks, including clinical tumor monitoring and treatment planning.
- Conducted extensive evaluations of segmentation performance using established medical imaging metrics, including Dice Score, Hausdorff Distance, per-class IoU, tumor volume, tumor count, and F-beta scores.

Teaching Experience

Graduate Course Assistant, New York Institute of Technology, New York, USA Sept 2024 – Present

Courses: Database Management, Big Data Analytics

- Guided students in applying database concepts and big data frameworks (SQL, Hadoop, Spark) to real-world case studies.
- Designed lab exercises and assignments emphasizing data modeling, distributed processing, and scalability.

Graduate Course Assistant, New York University, New York, USA Feb 2022 – May 2023

Courses: Machine Learning, Real-Time Embedded Systems

- Assisted faculty in course content preparation, grading, and exam evaluation.
- Supervised student projects through discussion sessions and office hours, guiding implementation and troubleshooting to help translate theoretical concepts into practical solutions.

Industry Experience

Software Engineer, GO-MMT (Goibibo Group), Gurgaon, India Jan 2019 – Apr 2021

Technologies: Python, Data Science, Full-Stack Web Developement, SEO, Git

- Engineered end-to-end hotel vertical platform, building back-end services (Kafka pipelines, MongoDB storage) and optimizing front-end image workflows, improving hotel image visibility from 78% to 97%.
- Applied data-driven insights into booking behavior and search patterns to refine personalization, enhance user engagement, and boost SEO rankings across hotels, trains, buses, and destinations.
- Designed and deployed scalable REST APIs and dashboards, collaborating with product, mobile, and marketing teams to launch domestic and international travel platforms from scratch.

Software Engineer, Bhavna Software India Pvt. Ltd., Noida, India Jun 2017 – May 2018

Technologies: Angular 2, TypeScript, C#, .NET, SQL, Git

- Developed and maintained full-stack features for lease management modules, including CRUD operations, imports/exports, and record maintenance.
- Optimized database queries and back-end logic, improving system efficiency and data consistency across records.
- Collaborated with cross-functional teams to integrate new features, streamline workflows, and deliver user-friendly front-end interfaces.

Publications & Thesis

[1] **A. P. Singh**, H. Cao, and Y. Liu, "SPICE: Synergy and Partial Information Based Curriculum Evolution," submitted to *2026 International Conference on Multimodal Interaction (ICMI)*, under review.[Preprint Online]

[2] **A. P. Singh**, H. Cao, and Y. Liu, "CHUCKLE - When Humans Teach AI to Learn Emotions the Easy Way," in *Proc. Interspeech 2026*, 2026.[Preprint Online]

[3] C. Chen, **A. P. Singh**, M. Zhu, Y. Yan, F. Juefei-Xu, and C. Feng, "Human-Inspired Summarization: Cluster Scene Videos into Diverse Frames," in *Proc. 2nd Workshop on Human-Inspired Computer Vision (HCV), ICCVW*, 2025.[Online]

[4] **A. P. Singh**, "Segmenting Metastatic Brain Tumor Using Deep Learning," *Master Of Science Thesis, Department of Electrical and Computer Engineering, New York University*, 2023.[Online]

Technologies

Programming Languages: Python, C, C++, SQL

Machine Learning & Deep Learning: PyTorch, Scikit-learn, Hugging Face, OpenCV, LangChain, Librosa

Data & Big Data: NumPy, Pandas, SciPy, PySpark, Hadoop, Matplotlib, Seaborn

Tools & Frameworks: Git, Docker, Django, Kafka, REST APIs, Redis

Databases & Cloud: MySQL, PostgreSQL, MongoDB, Hive, AWS

Operating Systems: Linux, macOS, Windows