# Aishik Konwer *Curriculum vitae*


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EDUCATION

**Stony Brook University, New York (USA)** 2019 - 2025
PhD, Computer Science GPA: 3.92/4
*Advisor*: Dr. Prateek Prasanna

**Institute of Engineering & Management, Kolkata (India)** 2013 - 2017
BTech, Electronics & Communication Engineering GPA: 8.89/10

RESEARCH INTERESTS

Multimodal LLMs (VLM/VLA), Generative AI (Diffusion, Video), RLHF & Post-Training (SFT, DPO), Embodied AI, Video Understanding, Meta-learning, Few-shot Learning

WORK EXPERIENCE

**Accenture - Advanced AI Research Scientist** May 2025 – present
AI Refinery team, Center of Advanced AI

- **Multimodal Generative Agents:** Fine-tuned Cosmos-based video generation models for domain-adapted synthesis; integrated controllable video generation frameworks with structured prompting for scenario-specific outputs; deployed VLM and generative model APIs serving multiple teams; developed end-to-end multimodal agents spanning perception and synthesis.
- **LLM Post-Training & Evaluation:** Built synthetic data curation pipelines for SFT, DPO, and RL-based optimization (GRPO), generating structured reasoning and alignment datasets; developed LLM-as-judge and automated evaluation frameworks for scalable benchmarking across training iterations.
- **Grounded Perception & Spatial Reasoning:** Developed spatially grounded VLM pipelines for anomaly detection with chain-of-thought reasoning; enabled zero-shot object detection via captioning and open-vocabulary models; enhancing multi-view VLA representations for spatial reasoning in robotic scenes.

**GE Healthcare - AI Scientist Intern** May 2024 - Aug. 2024
Working with Foundational AI team
Topic: Visual grounding and human-in-the-loop feedback for semi-supervised organ/tumor segmentation
Mentor: Danica Xiao

**SRI International - Deep Learning Research Intern** May 2023 - Aug. 2023
Worked with Scene Understanding and Navigation team
Topic: Remote sensing image segmentation from HS, LiDAR, and RGB data via masked pre-training
Mentor: Han-Pang Chiu

**Roche Diagnostics - ML Research Intern** May 2022 - Aug. 2022
Worked with Computational Science Pathology team
Topic: Annotation-efficient learning algorithm for cell detection and classification in gigapixel images
Mentor: Christoph Guetter

**Cognizant - Programmer Analyst** Dec. 2017 - Jul. 2019
Worked with Data warehouse team
Topic: Writing shell scripts, SQL, and Informatica transformations for data migration
Mentor: Kanchan Patra

PUBLICATIONS

- S Agarwal, **A Konwer**, AP Shah, "Reasoning-Guided Grounding: Elevating Video Anomaly Detection through Multimodal Large Language Models", submitted to **ECCV** 2026. [**PDF**]
- **A Konwer** et al., "*Gaze2Report*: Radiology Report Generation via Visual-Gaze Prompt Tuning of LLMs", **ISBI** 2026. [**Oral**] [**PDF**]
- "Physical AI: The Next Frontier in AI and Robotics to Build Truly Autonomous Machines", **Preprint** 2026. [**PDF**]
- **A Konwer** et al., "Enhancing SAM with efficient prompting and preference optimization for semi-supervised medical image segmentation", **CVPR** 2025. [**Oral**] [**PDF**]
- **A Konwer** et al., "MetaStain: Stain-generalizable Meta-learning for Cell Segmentation and Classification with Limited Exemplars", **MICCAI** 2024. [**PDF**]

- **A Konwer** et al., "Enhancing Modality-Agnostic Representations via Meta-Learning for Brain Tumor Segmentation", **ICCV** 2023. [**PDF**]
- **A Konwer** et al., "MagNET: Modality-Agnostic Network for Brain Tumor Segmentation and Characterization with Missing Modalities", **MICCAIw** 2023.
- **A Konwer** et al., "Temporal Context Matters: Enhancing Single Image Prediction with Disease Progression Representations", **CVPR** 2022. [**PDF**][**Oral**]
- **A Konwer** et al., "Lesion segmentation and genomic character-ization of brain cancer patients from incomplete MR sequences", *Radiology Society of North America* **(RSNA)** 2022. [**Oral**]
- **A Konwer** et al., "Clinical outcome prediction in COVID-19 using self-supervised vision transformer representations", **SPIE Medical Imaging** 2022. [**Oral**]
- **A Konwer** et al., "Attention-Based Multi-scale Gated Recurrent Encoder with Novel Correlation Loss for COVID-19 Progression Predictions", **MICCAI** 2021. [**Early Accept**] [**PDF**]
- **A Konwer** et al.,"Predicting COVID-19 Lung Infiltrate Progression on Chest Radiographs Using Spatio-temporal LSTM based Encoder-Decoder Network", **MIDL** 2021. [**PDF**]
- **A Konwer** et al., "Staff line Removal using Generative Adversarial Networks", **ICPR** 2018. [**PDF**][**Oral**]
- AK Bhunia*, **A Konwer***, A Bhowmick, AK Bhunia, PP Roy, U Pal, "Script Identification in Natural Scene Image and Video Frame using Attention based Convolutional-LSTM Network", **Pattern Recognition** 2019. [**PDF**]
- S Nag, AK Bhunia, **A Konwer**, AK Bhunia, PP Roy, "Facial Micro-expression Spotting and Recognition Using Time Contrasted Feature with Visual Memory", **ICASSP** 2019. [**PDF**]
- AK Bhunia, AK Bhunia, P Banerjee, **A Konwer**, A Bhowmick, PP Roy, U Pal, "Word Level Font-to-Font Image Translation using Convolutional Recurrent Generative Adversarial Networks", **ICPR** 2018. [**PDF**]

## Pre-PhD Research Experience

**IIT Roorkee - Research Intern** 2017 - 2018
Worked with Parimal Lab
Topic: Script identification and staff line removal from music score images
Mentor: Partha Pratim Roy

**Indian Statistical Institute - Research Intern** 2016 - 2017
Worked with CVPR unit
Topic: Handwritten text segmentation, GVF-based license character segmentation
Mentor: Umapada Pal

## Invited Talks

*"Less is Enough: Representation Learning with Low-resource Medical Imaging Datasets"* Apr. 2024
NYC CV Day, New York University
Host: David Fouhey

*"Towards Data-Efficient Representation Learning in Medical Vision"* Oct. 2023
MedAI group, Stanford University
Host: Daniel Rubin

*"Meta-Learning in Digital Pathology"* Nov. 2022
Roche Advanced Analytics Network
Host: Qinle Ba, Julie Ta

*"Modality-Agnostic Network for Brain Tumor Characterization with Missing Modalities"* Oct. 2022
Graduate Research Day, Stony Brook University
Host: Computer Science Dept.

*"Predicting Disease Trajectory on Medical Imaging"* May 2022
Siemens Healthineers
Host: Halid Yerebakan

*"How to utilize limited datasets? Can temporal imaging help"* Oct. 2021
Applied Maths and Stats Dept., Stony Brook University
Host: Wei Zhu

**Awards**

- **Travel grant**, Computer Vision and Pattern Recognition (CVPR), 2022
- **Conference support**, SPIE Medical Imaging, 2022
- **Professional Development Fund**, SUNY Research Foundation, 2021
- Prestigious **PhD Chairman Fellowship**, Stony Brook University, 2019
- NPTEL Elite Certification in Medical Image Analysis, IIT Kharagpur, 2017
- 1st Prize in Engineering Model-making Competition, NEN 2015

**Reviewer**

CVPR, ICCV, NeurIPS, ECCV, MICCAI, BMVC, Medical Image Analysis, MIDL, ISBI

**Teaching**

- CSE 305 Principles of Database Systems (Fall 2019, Spring 2020)
- CSE 512 Machine Learning (Summer 2020)

**Coursework**

Computer Vision, Machine Learning, Data Science, Visualization, Human Computer Interaction.

**Skills**

**Languages & Frameworks:** Python, C++, Matlab, SQL, PyTorch, TensorFlow, NumPy, OpenCV, LaTeX
**AI/ML:** PEFT, LoRA, Grounding DINO, GANs, ViT, SAM, Diffusion Models
**Infrastructure:** Azure, AWS, Kubernetes, Docker, Git