Aishik Konwer *Curriculum vitae*

CONTACT

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EDUCATION

Stony Brook University, New York (USA) 2019 - present
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

Broad Interests. Computer Vision, Deep Learning

Specific Interests. Annotation-efficient learning, Meta-learning, Multi-modal Fusion, Modality-efficient learning, Few-shot learning, Self-supervised learning, Segmentation, Predictive modeling

INDUSTRY EXPERIENCE

SRI International - Deep Learning Research Intern May 2023 - Aug. 2023
Worked with Scene Understanding and Navigation team
Topic: Remote sensing image segmentation via fusion of Hyperspectral, LiDAR, and RGB modalities using masked pre-training
Mentor: Han-Pang Chiu

Roche - 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

- **Aishik Konwer**, Xiaoling Hu, Joseph Bae, Xuan Xu, Chao Chen, and Prateek Prasanna, "Enhancing Modality-Agnostic Representations via Meta-Learning for Brain Tumor Segmentation", *International Conference on Computer Vision* **(ICCV)**, 2023. [**PDF**]
- **Aishik Konwer**, Chao Chen, and Prateek Prasanna, "MagNET: Modality-Agnostic Network for Brain Tumor Segmentation and Characterization with Missing Modalities", *Medical Image Computing and Computer-Assisted Intervention workshop* **(MICCAIw)**, 2023.
- **Aishik Konwer**, Xuan Xu, Joseph Bae, Chao Chen, and Prateek Prasanna, "Temporal Context Matters: Enhancing Single Image Prediction with Disease Progression Representations", *Computer Vision and Pattern Recognition* **(CVPR)**, 2022. [**PDF**][**Oral**]
- **Aishik Konwer**, Chao Chen, and Prateek Prasanna, "Lesion segmentation and genomic characterization of brain cancer patients from incomplete MR sequences", *Radiology Society of North America* **(RSNA)**, 2022. (Abstract) [**Oral**]
- **Aishik Konwer**, Prateek Prasanna, "Clinical outcome prediction in COVID-19 using self-supervised vision transformer representations", **SPIE Medical Imaging**, 2022. [**Oral**]
- **Aishik Konwer**, Joseph Bae, Gagandeep Singh, Rishabh Gattu, Syed Ali, Jeremy Green, Tej Phatak, and Prateek Prasanna, "Attention-Based Multi-scale Gated Recurr-ent Encoder with Novel Correlation Loss for COVID-19 Progression Predictions", *Medical Image Computing and Computer-Assisted Intervention* **(MICCAI)**, France, 2021. [**PDF**]
- **Aishik Konwer**, Joseph Bae, Gagandeep Singh, Rishabh Gattu, Syed Ali, Jeremy Green, Tej Phatak, Amit Gupta, Chao Chen, Joel Saltz, Prateek Prasanna "Predicting COVID-19 Lung Infiltrate Progression on Chest Radiographs Using Spatio-temporal LSTM based Encoder-Decoder Network", *Medical Imaging with Deep Learning* **(MIDL)**, Germany, 2021. [**PDF**]

- **Aishik Konwer**, Ayan Kumar Bhunia, Abir Bhowmick, Ankan Kumar Bhunia, Prithaj Banerjee, Partha Pratim Roy, Umapada Pal, "Staff line Removal using Generative Adversarial Networks", *International Conference on Pattern Recognition* **(ICPR)**, Beijing, 2018.[**PDF**] [**Oral**]
- Ankan Kumar Bhunia*, **Aishik Konwer***, Abir Bhowmick, Ayan Kumar Bhunia, Partha Pratim Roy, Umapada Pal, "Script Identification in Natural Scene Image and Video Frame using Attention based Convolutional-LSTM Network", **Pattern Recognition**, 2019. [**PDF**]
- Sauradip Nag, Ankan Kumar Bhunia, **Aishik Konwer**, Partha Pratim Roy "Facial Micro-expression Spotting and Recognition Using Time Contrasted Feature with Visual Memory", *International Conference on Pattern Recognition* **(ICASSP)**, Brighton UK, 2019. [**PDF**]
- Ankan Kumar Bhunia, Ayan Kumar Bhunia, Prithaj Banerjee, **Aishik Konwer**, Abir Bhowmick, Partha Pratim Roy, Umapada Pal, "Word Level Font-to-Font Image Translation using Convolutional Recurrent Generative Adversarial Networks", *International Conference on Pattern Recognition* **(ICPR)**, Beijing, 2018. [**PDF**]

Pre-PhD Research Experience

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

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

Invited Talks

"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

"Basics of Multitask, Transfer and Meta-Learning" Apr. 2022
Imagine Lab, Biomedical Informatics Dept.
Host: Prateek Prasanna

"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

- ISE 305 Database Design and Practice (Fall 2019)
- CSE 305 Principles of Database Systems (Spring 2020)
- CSE 512 Machine Learning (Summer 2020)

Coursework

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

Skills

Python, C++, Matlab, SQL, Pytorch, Tensorflow, Numpy, OpenCV, LaTeX