Subhajit Maity

Associate Research Engineer, Technology Innovation Hub, Indian Statistical Institute, Kolkata

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Education

Jalpaiguri Government Engineering College (Autonomous)   *Jalpaiguri, India*
B.Tech. in Electronics & Communication Engineering   Aug. 2014 - Dec. 2018
GPA: 8.47/10
Courses: Linear Algebra, Calculus, Artificial Intelligence
Project: Infrared-based IOT for Domestic Consumer Grade Appliances

Experiences

Technology Innovation Hub, Indian Statistical Institute, Kolkata   *Kolkata, India*
Associate Research Engineer   Jun. 2022 - Present
Working on Object Detection, Speed Estimation from a video feed, License Plate Recognition, and Scene Text Recognition.
Projects: Traffic Surveillance for Overspeeding Vehicles and License Plate Recognition
Supervisor: Prof. Umapada Pal, CVPR Unit, Indian Statistical Institute, Kolkata

Tata Consultancy Services Limited   *Kolkata, India*
System Engineer   Nov. 2018 - Jan. 2021
Worked as a developer for Oracle Fusion Middleware technologies (SOA Suite, OSB) and as administrator for SSO products (Oracle IAM, OAM) along with OCI cloud administration and Linux administration.
Projects: Oracle Cloud Migration, Oracle Single Sign On development in OAM and IAM, Oracle SOA development and migration from 11g

National Institute of Technology, Silchar   *Silchar, India*
Research Intern   Jun. 2017 - Jul. 2017
Worked on classical image processing, natural language processing, Bayesian classifier, and image caption generation.
Project: Word Sense Disambiguation for Ambiguous Words using Visual Supervision
Supervisor: Prof. Koushik Guha, Dept. of ECE, National Institute of Technology, Silchar

Technical Skills

Programming	Python, Matlab, Java
Professional Libraries	PyTorch, Numpy, Matplotlib, Seaborn, Pandas, Keras, Tensorflow
Documentation & Typesetting	MS Office, LaTeX, Beamer
Languages	Bengali (Native), English (Professional Proficiency)

Publications

[1] **S. Maity***, S. Biswas*, et al. "SelfDocSeg: A Self-Supervised vision-based Approach towards Document Segmentation ," *International Conference on Document Analysis and Recognition (ICDAR)*, 2023. [Link]

[2] **S. Maity**, S. Sarkar, et al. "Fault area detection in leaf diseases using k-means clustering ," *International Conference on Trends in Electronics and Informatics*, 1538-1542, 2018. [Link]

[3] **S. Maity**, R. K. Karsh. "Image Hash Minimization for Tamper Detection ," *International Conference on Advances in Pattern Recognition (ICAPR)*, 1-16, 2017. [Link]

Research Projects

Knowledge Distillation in Documents   *Barcelona, Spain*
Exploring Knowledge Distillation, Document Segmentation, Document Classification   May. 2023 - Present
Collaborator: Sanket Biswas, Computer Vision Center, Universitat Autònoma de Barcelona & Jordy Van Landeghem, KU Leuven

Self-Supervised Document Layout Analysis   *Barcelona, Spain*
Explored vision-based self-supervised learning for instance level segmentation of document layouts.   Jan. 2023 - Feb. 2023
Collaborator: Sanket Biswas & Prof. Josep Lladós, Computer Vision Center, Universitat Autònoma de Barcelona

Self-Supervised Object Detection   *Kolkata, India*

Explored self-supervised learning strategies and non-contrastive object-aware self-supervision for object detection and
the scope of end-to-end self-supervision for object detection.   Aug. 2022 - Mar. 2023

Supervisor: Prof. Umapada Pal, CVPR Unit, Indian Statistical Institute, Kolkata & Prof. Saumik Bhattacharya, Dept. of Electronics and
Electrical Communication Engineering, Indian Institute of Technology, Kharagpur

Vehicle Detection & Tracking with Speed Estimation & License Plate Recognition   *Kolkata, India*

Implemented object detection and vision-based tracking strategy for vehicle tracking in the traffic video feed, along with
vision-based speed estimation strategy and license plate recognition system using scene-text super-resolution and text   Jun. 2022 - May. 2023
spotting.

Supervisor: Prof. Umapada Pal, CVPR Unit, Indian Statistical Institute, Kolkata

Towards Faster Fine-Grained Sketch-based Image Retrieval   *Guildford, UK*

Explored knowledge distillation, gradient consensus, and reinforcement learning for efficient fine-grained sketch-based
image retrieval in Triplet network architecture.   Aug. 2021 - Jul. 2022

Mentor: Ayan K. Bhunia, SketchX, CVSSP, University of Surrey

Image Forgery Localization with Hashless Strategy   *Silchar, India*

Explored Image Forgery Localization using auto-encoders and attention module.   Jan. 2021 - Jun. 2021

Mentor: Prof. R. K. Karsh, Dept. of ECE, National Institute of Technology, Silchar

Human Action Recognition for Activity Monitoring on FPGA   *Kolkata, India*

Implemented action recognition using skeletal structure detection and tracking with pose estimation and object detection
for FPGA implementation.   Jan. 2021 - Aug. 2021

Supervisor: Prof. Swagata Mandal, Dept. of ECE, Jalpaiguri Govt. Engineering College & Dr. Satyabrata Maity, Calcutta University

Image Forgery Detection using Efficient Image Hash and Signatures   *Silchar, India*

Explored Image Forgery Detection using k-means clustering on visual features extracted SURF by constructing an
efficient hash-based strategy.   Jul. 2017 - Dec. 2017

Mentor: Prof. R. K. Karsh, Dept. of ECE, National Institute of Technology, Silchar

Word Sense Disambiguation using Visual Information   *Silchar, India*

Investigated the scope of drawing distinctions between senses of ambiguous words using visual contexts. Strategized
SIFT, and k-means clustering for Visual Word feature bank generation and explored Multinomial Naive Bayesian   Jun. 2017 - Jul. 2017
classifier for relevant environment image prediction.

Mentor: Prof. Koushik Guha, Dept. of ECE, National Institute of Technology, Silchar

Leaf Disease Detection   *Jalpaiguri, India*

Explored Segmentation using k-Means Clustering for leaf disease detection   May. 2017 - Jan. 2018

Collaborator: Sanket Biswas, Computer Vision Center, Universitat Autònoma de Barcelona & Avinaba Tapadar, Qualcomm India Pvt. Ltd.

Awards and Honors

Mar. 2023	**Participation**: Attended "G20 Expo, 2nd Education Working Group Metting, G20 Summit 2023"	*Amritsar, India*

Volunteer Services

International Journal of Advances in Applied Sciences (IJAAS)   *http://ijaas.iaescore.com*

Peer Reviwer   Oct. 2021

9th International Conference on Advances in Pattern Recognition   *Bangalore, India*

Presentation / Attendance   Dec. 2017