Shuvozit Ghose *Curriculum vitae*

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Research Interests Computer Vision, Deep Learning, Machine Learning, Pattern Recognition, Image Processing.

Present Position Intern at Indian Institute of Technology, Roorkee (since August 2020).

Education

Institute of Engineering & Management, Kolkata (India) 2020
University: Maulana Abul Kalam Azad University of Technology
Formerly known as West Bengal University of Technology

- Computer Science & Engineering
- DGPA: 8.81/10 (Including all 8 Semesters)
- Graduated with Bachelor of Technology (Honours)
- B.Tech Thesis: *'A Simplistic All Convolution Net for Efficient Real Time Object Recognition'*

Pangsha College, Pangsha, Rajbari (Bangladesh) 2015
- Board of Intermediate and Secondary Education, Dhaka(12^{th} Standard)
- GPA: 5.00/5.00

Yakub Ali Chowdhury Bidyapith, Pangsha, Rajbari (Bangladesh) 2013
- Board of Intermediate and Secondary Education, Dhaka (10^{th} Standard)
- GPA: 5.00/5.00

Journal Publications

1. **Shuvozit Ghose**, Abhirup Das, Ayan Kumar Bhunia, Partha Pratim Roy, "Fractional Local Neighborhood Intensity Pattern for Image Retrieval using Genetic Algorithm", **Multimedia Tools and Applications 2020, Springer** (DOI:10.1007/s11042-020-08752-6). [**PDF**] [arXiv]

   - **Highlights:**
     - A new texture descriptor has been proposed utilizing genetic algorithm for contend based image retrieval.
     - Our method has achieved superior performance in comparison to other state-of-art approaches on Brodatz texture image, OASIS database, Salzburg texture database and AT&T face database. .

2. Ayan Kumar Bhunia, Ankan Kumar Bhunia, **Shuvozit Ghose**, Abhirup Das, Partha Pratim Roy, Umapada Pal "A Deep One-Shot Network for Query-based Logo Retrieval", **Pattern Recognition**, Volume 96, Pages 106965, 2019. (DOI:10.1016/j.patcog.2019.106965). [**PDF**] [**Github**] **(I.F.- 5.898)**

   - **Highlights:**
     - A scalable solution for the logo detection problem by redesigning the traditional problem setting capable of detecting small logos.

- A query-based logo search and detection system by employing a simple, fully differentiable one-shot learning framework which is adoptable to new classes. .

Conference Papers

1. **Shuvozit Ghose**, Pinaki Nath Chowdhury, Partha Pratim Roy, Umapada Pal, "Modeling Extent-of-Texture Information for Ground Terrain Recognition", *International Conference on Pattern Recognition* **(ICPR)**, Milan, 2020.[**PDF**] [**Github**] [arXiv]

   - **Highlights:**
     - A novel approach towards ground-terrain recognition by modeling the extent of texture information to establish a balance between the order-less texture and ordered-spatial information locally.
     - Introduced Intra-domain Message passing mechanism and Inter-domain Message passing module in the context of ground terrain recognition for rich feature learning. .

2. Perla Sai Raj Kishore, Ayan Kumar Bhunia, **Shuvozit Ghose**, Partha Pratim Roy, "User Constrained Thumbnail Generation Using Adaptive Convolutions", *International Conference on Acoustics, Speech, and Signal Processing* **(ICASSP)**, London, 2019.[**PDF**] [**Github**] [arXiv] [**Oral**]

   - **Highlights:**
     - A new framework for user constrained thumbnail generation using Adaptive Convolutions.
     - Our method has achieved superior performance in comparison to other conventional approaches.

Submitted Papers

1. Amandeep Kumar*, **Shuvozit Ghose***, Pinaki Nath Chowdhury, Partha Pratim Roy, Umapada Pal, "UDBNET: Unsupervised Document Binarization Network via Adversarial Game", *International Conference on Pattern Recognition* **(ICPR)**, Milan, 2020.[**PDF**] [**Github**] [arXiv] [***Equal Contribution**][Second Round Submission]

   - **Highlights:**
     - Introduce adversarial game first time in the domain of document image binarization by proposing Adversarial Texture Augmentation Network (ATANet) and Unsupervised Document Binarization Network (UDBNet).
     - Introduce a joint discriminator which tries to couple the ATANet and UDBNet so that it can tackle the dataset bias problem and perform well on the real degraded document image. .

Familiarity with DL

(i) CNN	(ii) RNN/LSTM	(iii) GANs
(iv) Graph Convolution Networks	(v) Transfer Learning	(vi) Meta Learning
(vii) Siamese Network	(viii) Attention based Model	(ix) MAML
(x) Domain Adaptation	(xi) Semantic Segmentation	(xii) Style Transfer

Relevant Projects

- UDBNET: Unsupervised Document Binarization Network via Adversarial Game [**Tools**: Python/ Pytorch] [**Github**]
- Modeling Extent-of-Texture Information for Ground Terrain Recognition [**Tools**: Python/ Pytorch] [**Github**]
- Shadow Detection using RESNET Encoder-Decoder Network [**Tools**: Python/Pytorch] [**Github**]
- A Deep One-shot Network for Query-based Logo Retrieval [**Tools**: Python/Tensorflow]
- Object Recognition Using All CNN Network in CIFAR-10 [**Tools**: Python/Tensorflow] [**Github**]
- Triplet Dataset generation in FlickersLogos32 Dataset [**Tools**: Python] [**Github**]
- User Constrained Thumbnail Generation System [**Tools**: Python/Tensorflow]
- E-Commerce Data Analysis Using Hadoop [**Tools**: Hadoop/Hive] [**Report**]
- Smart Home Automation System using Sensors [**Tools**: Arduino/C] [**Report**]

Achievements

- Trainee at OgmaTech Lab, 2019.
- Got NPTEL Elite Certification in Deep Learning for Visual Computing, 2018.
- Got A in 17th Rock Climbing Course, 2017.
- Complete Marathon in UEM-IEM Kolkata Marathon 2017.
- Active Member of Green Revolution.
- 2nd Prize in Tabla, Bangladesh Sishu Academy Competition District Level, 2009.

Relevant Coursework

(i) Linear Algebra & Diff. Eqn. (ii) Statistics & Probability (iii) Data Structure
(iv) Object Oriented Programming (v)Algorithm (vi) Discrete Mathematics

Technical Skills

- Programming Languages: C, C++, JAVA, Python.
- Low level Programming : 8085 Assembly.
- Deep Learning Framework: Tensorflow, Pytorch.
- Big Data Platform: Hadoop, Map-Reduce,Hive, Hbase, Pig, Scoop.
- Hardware Exposure: Arduino.
- Web Platform: HTML,CSS,JavaScript.
- Mathematics: Linear-algebra, Probability, Statistics.
- Miscellaneous: OpenCV, LIBSVM library, HTK library.

Test Scores

- GRE: Total: 307, Quants: 160/170, Verbal: 147/170, AWA: 3.0
- IELTS: 6.5 (R-6.5, L-6.5, W-6.0, S-6.0)

References

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