Arnab Sen Sharma ♂

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Research Interests

Data Science, Computer Vision, NLP. Particulaly, the applications of Data Science and Machine Learning for social good.

Education

Shahjalal University of Science and Technology (SUST)   *April, 2014 - November, 2018*
BSc(Engg.) in Computer Science and Engineering
CGPA: **3.91/4.00** *(Rank: 1, class of 2018)*

Test Scores

- GRE (Verbal: 165, Quant: 170, AWA: 4.0)
- TOEFL (Writing: 29, Listening: 30, Reading: 30, Speaking: 24)

Publications

- Md. Enamul Hoque, Md. Shariful Islam, **Arnab Sen Sharma**, Rashedul Islam,and Mohammad Ruhul Amin. 2021. *"Challenges in Tracking the Risk of COVID-19 in Bangladesh: Evaluation of A Novel Method"*. In Proceedings of August 15 (KDD Workshop on Data-driven Humanitarian Mapping, 27th ACM SIGKDD Conference). ACM, New York, NY, USA. *Kindly check out my **5-minute talk** on this paper prepared for this conference.*

- **Sharma, A. S.**, Roy, T., Rifat, S. A. & Mridul, M. A. (2021). *"Presenting a Larger Up-to-Date Movie Dataset and Investigating the Effects of Pre-Released Attributes on Gross Revenue."* Journal of Computer Science, 17(10), 870-888. DOI: 10.3844/jcssp.2021.870.888.

- **A. S. Sharma**, M. A. Mridul and M. S. Islam, *"Automatic Detection of Satire in Bangla Documents: A CNN Approach Based on Hybrid Feature Extraction Model"*, 2019 International Conference on Bangla Speech and Language Processing (ICBSLP), Sylhet, Bangladesh, 2019, pp. 1-5, doi: 10.1109/ICBSLP47725.2019.201517. [**IEEE Best Paper Award**, awarded by ICBSLP, 2019]

- **A. Sen Sharma**, M. Ahmed Mridul, M. Jannat and M. Saiful Islam, *"A Deep CNN Model for Student Learning Pedagogy Detection Data Collection Using OCR"*, 2018 International Conference on Bangla Speech and Language Processing (ICBSLP), Sylhet, 2018, pp. 1-6, doi: 10.1109/ICBSLP.2018.8554701.

Experiences

- **Research Associate, Natural Language Processing Research Group, SUST**   *August 2019 - Present*
  ⋄ Co-authored and served as the Principal Investigator on a project entitled *"A BiLSTM based Deep Learning Approach for Hate Speech Detection in Bangla Text and a Benchmark Dataset for Hate Speech in Bangla"*. The proposed project won a research grant worth **2,30,000 BDT (∼2600 USD)** from SUST Research Center (*Project ID: AS/2020/1/26*). A portion of this work is available online as ***preprint***.

- **Lecturer, Department of CSE, SUST** [Faculty Profile]   *July 2019 - Present*
  ⋄ **Taught Courses:** Database Management Systems, Software Engineering and Design Patterns, Web Technologies.
  ⋄ Served as a member of *Undergrad Final Year Thesis/Project Evaluation Committee*, Session 2019-20, 2020-21.

- **Software Engineer, Samsung R&D Institute, Bangladesh**   *September, 2018 - June, 2019*
  ⋄ Robot simulation project. Controlling movements and actions of a robot using Samsung Galaxy Tab S4.
  ⋄ Baby crying sound detection on Android devices using *Tensorflow Lite*.
  ⋄ Sensor data collection from smart devices and their application in detecting gestures and biometric properties.
  ⋄ Understood the codeflow of certain parts of the *multimedia* and *V8* modules of *chromium-efl*.
  ⋄ Understood storage system for various cross platform cellular devices.

Ongoing Research Projects and Collaborations

- *Hate Speech Modeling in Social Media Platforms*, SUST NLP Lab. [**preprint**]

- *Calculating Attention Score of Online Classes by Tracking Students' Gaze on Screen*, under supervision of Dr. Mohammad Ruhul Amin, Assistant Professor, Fordham University. [github]

- COVID-19 Research
  ⋄ *Risk Assessment and Forecasting*, with Dr. Md Enamul Hoque, Associate Professor, SUST; Dr. Md. Shariful Islam, Assistant Professor, NSU; and Dr. Mohammad Ruhul Amin, Assistant Professor, Fordham University.
  ⋄ *Tracking COVID-19 cases in Bangladesh via Participatory Syndromic Surveillance System*, project under supervision of Dr. Mohammad Ruhul Amin, Assistant Professor, Fordham University.

- *Anomaly Detection in Abdomen CT Scan Reports (in DICOM format) for Automatic Report Generation.*

Honors and Awards

- Secured 3rd place in ***SAMSUNG Research ROBOT HACKATHON-2018*** as part of the team ***SRBD_Hyperbola***.
- **Notable Performances on onsite programming contests**
  - ◇ ACM ICPC ASIA Regional, Dhaka Site 2017, Rank : 21, (SUST_PeakSeeker)
  - ◇ ACM ICPC ASIA Regional, Dhaka Site 2016, Rank : 11, (SUST_DeapThunder)
  - ◇ IUBAT IUPC, Rank : 4 , (SUST_DeapThunder)
  - ◇ BSCCL National Programming Contest (Hackathon) at UITS, Rank : 6, (SUST_1)
  - ◇ LU Inter University Programming Contest 2016, Rank : 4, (SUST_BlackJAM)

Projects

- **COVID-19 in Bangladesh** [github] - An interactive website built with *ReactJS* and *Flask* to showcase our work on tracking and forecasting COVID-19 situation in Bangladesh. The site is live at erdos.dsm.fordham.edu:3000. *Kindly check the site from a desktop/laptop/tab. The site is not optimized for smartphone screens.*
- **Sentece Similarity Measurement for Bangla** [github] - Experimented with *Siamese* Neural Network architecture for calculating the similarity score between 2 Bangla sentences.
- **Algorithm Simulator** [github] - A desktop application aiming to help newbie competitive programmers to get an understanding of basic algorithms, data structures, and different kinds of sorting techniques.
- **DareIt?!** [github] - An arcade game for android platform.
- **Travel Santa** [github] - A web application aiming to help tourists to find hotels and restaurants near tourist spots.
- **Shurodhwani** [github] - An online audio sharing and listening platform.
- **EduHelper** [github] - A web application aiming to help teachers make and share their lessons.
- Web Scrappers built for different purposes - IMDb, BoxOfficeMojo, CodeForces, AtCoder, VJudge, Scrappers built for preparing dataset for sarcasm detection in Bangla texts.
- Other projects include - BoxOffice Revenue Prediction, Biometrics using Smartphone Sensors, GRE Flashcard, Bangla Handwritten Digit Classification for a Kaggle Contest.

Technical Skills

- **Languages**: Python, C++, JAVA
- **ML Libraries**: TensorFlow, PyTorch
- **Web Frameworks**: ReactJS, Flask, Django, Laravel-5
- **Tools/IDEs**: Anaconda, JASP, Android Studio, Unity2D
- **Others**: GIT, L^AT_EX

Services and Volunteer works

- Conducted workshops on basic Data-Science and Machine Learning concepts for undergrad students of CSE, SUST.
- Advising undergraduate students working on Data Science and Machine Learning projects.
- Competitive Programming Trainer for undergraduate students at SUST and Sylhet International University.
- Problem Setter, Judge, and Alternate Solution Writer for several programming contests including NEUB Junior Inter University Programming Contest-2017, Varendra University Inter University programming contest-2017, and SUST Intra University Programming Contest-2017.
- Serving as a core member of the Consultant Team on the project *Development of Health Service Management System for Sylhet M A G Osmani Medical College Hospital.* Responsibilities include monitoring the requirement collection process and architecture design of the project.
- Served as a core member of the *Technical Sub-committee*, SUST Admission Process - 2021.

References

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