

Shraman Pramanick

Curriculum Vitae

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Research Interests

- Self-Supervised Learning, Vision-Language Pre-training
- Multimodal Learning (Vision + Language, Vision + Other Modalities)
- Planet-Scale Image & Video Geo-localization (Beyond Retrieval)

Education

- Jan 2021 - **Johns Hopkins University, Baltimore, MD, USA.**
Present Ph.D. (with M.S.) in Electrical and Computer Engineering
Advisor: [Rama Chellappa](#), [AIEM Lab](#), ECE (**GPA:** 4.0/4.0)
Research: Self-Supervised Learning, Multimodal Learning, Image Geo-localization
- 2016 - 2020 **Jadavpur University, Kolkata, WB, India.**
Bachelor of Engineering (B.E.) in Electronics & Telecommunication Engineering
Advisor: [Amit Konar](#), AI Lab, ETCE (**GPA:** 9.41/10.0)
Bachelor's Thesis: Localizing and Grasping of 3-D Objects by a Vision-Actuated Robot Arm using Brain-Computer Interface

Research Experience

- May 2022 - **Research Scientist Intern, Meta AI.**
Mar 2023 **Collaborators:** [Pengchuan Zhang](#), [Li Jing](#), [Yale Song](#), [Hardik Shah](#), & [Yann LeCun](#)
• **Egocentric Video-Language Pre-training:** Worked on egocentric video-language foundational model using cross-modal *fusion* in uni-modal backbones, and achieved state-of-the-art performance on a wide range of egocentric downstream including EgoMCQ, EgoNLQ, EgoMQ, QFVS, EgoTaskQA, CharadesEgo and Epic-Kitchens.
• **Multimodal Dimension-Contrastive Pre-training:** Worked on dimension-contrastive [Barlow Twins](#) pre-training for image-caption pairs with explicit region-level understanding.
- Feb 2021 - **Graduate Research Assistant, Johns Hopkins University.**
Present **Advisor:** [Rama Chellappa](#), [AIEM Lab](#), ECE
• **Planet-scale Single Image Geo-localization:** Proposed [TransLocator](#), a dual-branch transformer network for planet-scale image geo-location under challenging appearance variation.
• **Real-time Detection of Activities in Untrimmed Videos:** Working on proposal-based solution to spatio-temporal action detection in untrimmed videos as a part of [DIVA](#) program.
- May 2020 - **Research Associate, QCRI (Doha) & IIIT-Delhi Collaboration.**
Jan 2021 **Advisor:** [Preslav Nakov](#) & [Tanmoy Chakraborty](#)
• **Data Efficient and Scalable Multimodal Learning (Vision, Language & Speech)**
- Multimodal Abstractive Summarization, Multimodal Sentiment & Affect Analysis
- Detecting Harmful Internet Memes and Their Targets
- May 2019 - **Mitacs Globalink Research Intern, University of Montreal, Canada.**
Aug 2019 **Advisor:** [Antoine Saucier](#), Mathematical and Industrial Engineering
• **Artefact-free Noise Reduction for Signals and Images:** Worked on classical NR algorithms that preserve details, edges and fine patterns by analyzing local image regions.

Teaching Experience

- Spring 2023 **Coarse Assistant: Machine Intelligence (EN.520.650), Johns Hopkins University.**
Spring 2022 **Coarse Assistant: Machine Intelligence (EN.520.650), Johns Hopkins University.**

Selected Publications

Please see [Google Scholar](#), [Semantic Scholar](#) for the complete list of publications

Pre-prints

- **Pramanick S.**, Song Y., Nag S., Lin K., Shah H., Shou M., Chellappa R., Zhang P., “EgoVLPv2: Egocentric Video-Language Pre-training with Fusion in the Backbone”. (Under Submission)
- **Pramanick S.***, Jing L.*, Nag S.*, Zhu J., Shah H., LeCun Y., Chellappa R., “VoLTA: Vision-Language Transformer with Weakly-Supervised Local-Feature Alignment”. (Under Submission) [[pdf](#)]

Conference Proceedings

- **Pramanick S.**, Nowara E.M., Gleason J., Castillo C.D., Chellappa R., “Where in the World is this Image? Transformer-based Geo-localization in the Wild”, *European Conference on Computer Vision (ECCV)*, 2022 [[pdf](#) | [code+data](#) | [poster](#) | [slides](#) | [video](#)]
- **Pramanick S.***, Roy A.*, Patel V.M., “Multimodal Learning using Optimal Transport for Sarcasm and Humor Detection”, *Winter Conference on Applications of Computer Vision (WACV)*, 2022. [[pdf](#)]
- **Pramanick S.***, Sharma S*, Dimitrov D., Aktar S., Nakov P., Chakraborty T., “MOMENTA: A Multimodal Framework for Detecting Harmful Memes and Their Targets”, *Findings of Empirical Methods in Natural Language Processing (EMNLP)*, Nov. 2021. [[pdf](#) | [code+data](#) | [poster](#) | [slides](#)]
- **Pramanick S.**, Dimitrov D., Mukherjee R., Sharma S., Aktar S., Nakov P., Chakraborty T., “Detecting Harmful Memes and Their Targets”, *Findings of Annual Meeting of the Association for Computational Linguistics (ACL)*, Aug. 2021. [[pdf](#) | [code+data](#) | [slides](#) | [video](#)]
- **Pramanick S.**, Aktar S., Chakraborty T., “Exercise? I thought you said ‘Extra Fries’: Leveraging Sentence Demarcations and Multi-hop Attention for Meme Affect Analysis”, *AAAI Conference on Web and Social Media (ICWSM)*, Jun. 2021. [[pdf](#) | [code](#) | [poster](#) | [slides](#) | [video](#)]

Journals

- Rakshit A., **Pramanick S.**, Bagchi A., Bhattacharyya S., “Autonomous grasping of 3-D objects by a vision-actuated robot arm using Brain-Computer Interface”, *Biomedical Signal Processing and Control* [IF - 5.076], Elsevier, Feb. 2023. [[pdf](#)]
- Atri Y.*, **Pramanick S.***, Goyal V., Chakraborty T., “See, Hear, Read: Leveraging Multimodality with Guided Attention for Abstractive Text Summarization”, *Knowledge-Based Systems* [IF - 8.139], Elsevier, Sept. 2021. [[pdf](#) | [code+data](#)]

Selected Honors & Awards

- Jan 2021 [JHU ECE Departmental Fellowship](#), awarded to outstanding incoming PhD students.
- May 2019 [Mitacs Globalink Research Internship](#), awarded to top-ranked applicants from 15 different countries to participate in a 12-week research internship in Canadian universities.
- Oct 2016 [JBNSTS Senior Scholarship](#), 4-year scholarship for academic excellence during B.E.
- Jan 2015 [Regional Mathematical Olympiad \(RMO\)](#), ranked among top-10 students in the state.

Technical Skills

Programming Languages: Python, MATLAB, C/C++, Mathematica, \LaTeX

Libraries & Tools: Pytorch, Keras, Tensorflow

Voluntary Services

Reviewer for CVPR, ECCV, ICCV, WACV, EMNLP, ACL, TPAMI, TNNLS, TAI, TAFCC.

References

[Rama Chellappa](#), Bloomberg Distinguished Professor, Johns Hopkins University

[Pengchuan Zhang](#), Research Scientist, Meta AI

[Li Jing](#), Research Scientist, OpenAI