ALOK SINGH

Research Interests

Video shot boundary detection, Video captioning, Image processing, Machine Learning, Natural Language generation.

Educational Qualification

National Institute of Technology, Silchar **2019 - current**
Ph.D, Department of CSE **Advisor:** Dr. Thodum Doren Singh and Prof.Sivaji Bandyopadhyay

National Institute of Technology, Silchar **2017-2019**
M.Tech, Department of CSE (8.85 cgpa) **Advisor:** Dr. Dalton Meitei Thounaojam

Uttarakhand Technical University, India **2013-2017**
B.Tech, College of Engineering Roorkee (73.35%)

Research Activites

Center for Natural Language Processing, NIT Silchar **July, 2019-current**
Supervisors: Dr. Thodum Doren Singh and Prof.Sivaji Bandyopadhyay
Ongoing research: Visual Description Generation: bridging a gap between vision and natural language. The objective of the resaerch is to generate a short natural language description of the action and events occuring in an Image or Video.

Computer Vision Lab, NIT Silchar **July, 2017-2019**
Supervisor: Dr. Dalton Meitei Thounaojam
Area of research: Temporal Shot Boundary Detection in the presence of illumination and motion effect in a video.
The objective of the research was to detect abrupt boundaries in a video under illumination and motion effect effectively and efficently.

Academic Activites

Workshop Reviewing:
ALVR2020 (ACL2020), ALVR2021 (NAACL-21)

Talks/Tutorials:
- Presented a tutorial on "*Visual Description Generation: Fusion of Vision and Natural Language"* in Recent Advance in Machine Translation (RAMT-2021) a worksohp organised by NIT Silchar.

Technical Skills

Programming Language : Python, MATLAB, C.
Framework & Tools : Keras, Pytorch, Tensorflow.

Publications

Journal Papers

1. Chakraborty, S., **Singh, A.** & Thounaojam, D.M. A novel bifold-stage shot boundary detection algorithm: invariant to motion and illumination. *Vis Comput* (2021). https://doi.org/10.1007/s00371-020-02027-9 (SCI Journal)
2. **Singh, A.**, Thounaojam, D. M., & Chakraborty, S. (2019). *A novel automatic shot boundary detection algorithm: robust to illumination and motion effect*. Signal, Image and Video Processing, 1-9. (SCI Journal). (Code: https://github.com/alokssingh/Temporal-segmentation-Shot-boundary)

Conference Papers

1. **Singh, A.**, Meetei, L.S., Singh, T.D., & Bandyopadhyay, S. *Generation and Evauation of Hindi Image Captioning of Visual Genome. In Proceedings of I3CS 2021 https://doi.org/10.1007/978-981-33-4084-8_7.*
2. Chakraborty, S., Thounaojam, D.M., **Singh, A.**, Pal, G., *ALO-SBD: A Hybrid Shot Boundary Detection Technique for video surveillance System. In Proceedings of ADCOM 2020 (Accepted Rank- B)*

Workshop Papers/ Invited Papers/Preprints/Shared Task:

1. **Singh, A.**, Singh, T.D., & Bandyopadhyay, S. (2020). *NITS-VC system for VATEX Video Captioing Challenge 2020*. Invited Paper in workshop LVVU CVPR 2020 *arXiv preprint arXiv:2006.04058*(2020).
2. **Shared Task**: VATEX Video captioning https://competitions.codalab.org/competitions/24360)

Under Communication:

1. **Singh, A.,** Singh, T. D., & Bandyopadhyay, S. *V2T: Video to Text Framework Using a Novel Automatic Shot Boundary Detection Algorithm*. (Multimedia Tools and Applications)
2. **Singh, A.,** Singh, T. D., & Bandyopadhyay, S. *An Encoder-Decoder Based Framework for Hindi Image Caption Generation*. (Multimedia Tools and Applications)
3. **Singh, A.,** Singh, T. D., & Bandyopadhyay, S. (2020). A Comprehensive Review on Recent Methods and Challenges of Video Description. *arXiv preprint arXiv:2011.14752*. (ACM Computing Survey)

Datasets:

1. MSR-VTT Hindi video descrioption dataset
   - Available at: https://github.com/alokssingh/MSR-VTT-captioning
   - Baseline model: https://github.com/alokssingh/RMN-MSR-VTT-Hindi-VC

Personal Siklls

1. Always follow target-specific approach.
2. Always seeks for improvement.
3. Ability to work as individual as well as in group.

Codes/Contact Details

1. Github: https://github.com/alokssingh
2. Website: https://alokssingh.github.io/
3. LinkedIn: https://www.linkedin.com/in/alokssingh/