# MANOJ ACHARYA

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## RESEARCH INTERESTS

Machine Learning (Deep Learning), Computer Vision, Object Detection, Natural Language Processing (NLP), Lifelong/Continual Learning, Vision and Language, Visual Question Answering (VQA) , Open World / Open-Set Learning.

## EDUCATION

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| 2016 – now | Ph.D., Imaging Science<br>Chester F. Carlson Center for Imaging Science<br>Rochester Institute of Technology, Rochester, NY<br>*Adviser: Christopher Kanan* |
| 2009 – 2013 | B.E, Electronics and Communication Engineering<br>Institute of Engineering Lalitpur, Nepal<br>Project I: Image Processing Based “Ball and Beam” control system<br>Project II: Real Time Nepali Sign Language Recognition using Neural Network |

## RESEARCH PUBLICATIONS ( * = Equal Contribution)

1. **Acharya, M.,** Hayes, T. L., & Kanan, C. (2020). "RODEO: Replay for online object detection." In the British Machine Vision Conference (BMVC 2020).
2. Hayes, T.*, Kafle, K.*, Shrestha, R.*, **Acharya, M.**, and Kanan, C.(2020). REMIND your neural network to prevent catastrophic forgetting. In the European Conference on Computer Vision (ECCV 2020).
3. Chaudhary, A. K.*, Kothari, R.*, **Acharya, M.***, Dangi, S., Nair, N., Bailey, R., Kanan, C. & Pelz, J. B. (2019). RITnet: real-time semantic segmentation of the eye for gaze tracking. In IEEE/CVF International Conference on Computer Vision Workshop (ICCVW 2019 ) [Winning Submission]
4. **Acharya, M.,** Jariwala, K., & Kanan, C. (2019). "VQD: Visual query detection in natural scenes." In Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL 2019).
5. **Acharya, M.,** Kafle, K., and Kanan, C. (2019). "TallyQA: Answering complex counting questions." In Proceedings of the AAAI Conference on Artificial Intelligence. (AAAI 2019). [Spotlight presentation]

6. **Acharya, M.,** & Pant, D. R. (2015). "Computer Vision Based Hand Gesture Recognition For Speech Disabled Persons." In Journal of the Institute of Engineering 11.1 (2015): 30-35.

**TALKS AND POSTERS**

1. Guest Lecturer for Khwopa College of Engineering, Nepal - Talked about Introduction to AI and Lifelong Learning.
2. Guest Lecturer for RIT's Deep Learning Course designed for graduate students. - Talked about Object detection and Language&Vision.
3. "Robust, real-time Semantic Segmentation of the Eye for Gaze Tracking", Frameless Symposium 2019 (Talk)
4. "Know *thy* Enemy: Invasive Species Detection in High Resolution Imagery", WNYISPW 2019. (Poster)
5. On Unifying Deep Generative Models, Mathematics for Deep Learning Reading Group 2019. (Talk)
6. "TallyQA: Answering Complex Counting Questions", Vision and Language Session ( Spotlight Talk)
7. "TallyQA: Answering Complex Counting Questions", Reasoning and Complex QA Workshop at AAAI 2019 (Poster + Talk)
8. "TallyQA: Answering Complex Counting Questions", ViGIL workshop at NeurIPS 2018 (Poster)

**RESEARCH EXPERIENCE**

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| 2021 | Research Intern , SRI International<br>Highlights: Graph Neural Networks, Novelty, GCN, Graph-Transformer |
| 2017 – now | Graduate Research Assistant, RIT |
| 2015 – 2016 | Software Developer, IT Expert<br>Highlights: Developed early prototype software for automating dental RCT surgeries by generating 3D visualizations. |
| 2013 – 2014 | Researcher, PowerTech Nepal<br>Mentor: Surendra Mathema<br>Highlights: Developed need based embedded IoT based solutions for hospitals, micro-hydro projects, etc. |

**TEACHING EXPERIENCE**

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| 2018 | Graduate Teaching Assistant, Rochester Institute of Technology<br>**Class:** Deep Learning for Computer Vision |
| 2016 - 2017 | Teaching Assistant, Rochester Institute of Technology<br>**Classes:** Image Processing and Computer Vision I & II |

2013 Lecturer, Thapathali Engineering College
**Class:** Image processing and pattern recognition

**PROFESSIONAL SERVICES**

Conference Reviews:

- Workshop on Shortcomings of Vision and language (SiVL) at ECCV 2018 and NAACL 2019
- EMNLP 2019
- NeurIPS 2019
- Western New York Image and Signal Processing Workshop (WNYISPW) 2019
- NeurIPS Reproducibility Challenge 2019
- AAAI 2020
- ACL 2020
- BMVC 2020
- ACL-IJCNLP 2021
- aFfordable healthcare and AI for Resource diverse global health (FAIR) workshop, MICCAI 2021

**TECHNICAL SKILLS**

Languages: English, Nepali (mother tongue), Hindi.
Programming Languages: Python, C , C++, LATEX.
Deep/ML Toolboxes: MatConvNet, Scikit-Learn, Pytorch.
Web Development: HTML, CSS, JavaScript.

**AWARDS AND ACHIEVEMENTS**

- First prize - Facebook OpenEds Challenge, ICCV 2019 AR/VR research workshop ( Cash prize + Travel scholarship)
- Travel grant to attend AAAI 2019 conference at Hawaii.
- Best Student Poster Award in the annual RIT graduate showcase.
- Second position in Ethical Hacking competition organized by LOCUS 2011.
- Four years of merit based scholarship for outstanding students at IOE, Pulchowk.