# MANOJ ACHARYA

307 Robert Quigley Dr, Scottsville,NY,14546
Email: ma7583@rit.edu
Cell: 585.364.5971
Web: www.manojacharya.com

## RESEARCH INTERESTS

Machine Learning (Deep Learning), Computer Vision, Object Detection, Natural Language Processing (NLP), Lifelong Learning, Vision and Language e.g. Visual Question Answering (VQA).

## EDUCATION

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

## RESEARCH PUBLICATIONS

1. RODEO: Replay for Online Object Detection ( BMVC 2020)
   ***Manoj Acharya**, Tyler L. Hayes, and Christopher Kanan*
2. REMIND Your Neural Network to Prevent Catastrophic Forgetting ( ECCV 2020)
   *Tyler L. Hayes\*, Kushal Kafle\*, Robik Shrestha\*, **Manoj Acharya**, Christopher Kanan*
3. RITnet: Real-time Semantic Segmentation of the Eye for Gaze Tracking (ICCV 2019) [Winning Submission]
   *Aayush Chaudhary\*, Rakshit Kothari\*, **Manoj Acharya\***, Shusil Dangi, Nitinraj Nair, Reynold Bailey, Christopher Kanan, Gabriel Diaz, Jeff B. Pelz.*
4. VQD: visual query detection in natural scenes (NAACL 2019)
   ***Manoj Acharya,** Karan Jariwala, Christopher Kanan*
5. TallyQA: answering complex counting questions (AAAI 2019) [Spotlight presentation]
   ***Manoj Acharya,** Kushal Kafle, Christopher Kanan*
6. Computer vision based hand gesture recognition for speech disabled persons. Journal of the Institute of Engineering, 2015
   ***Manoj Acharya,** Diwakar Raj Pant*

\* = Equal Contribution

**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**

2013 – 2014      Researcher, PowerTech Nepal
Mentor: Surendra Mathema
Highlights: Developed inhouse display solutions to disseminate health related information for hospitals. Also helped in designing embedded systems for hospitals, micro-hydro projects and disaster response units.

2015 – 2016      Software Developer, IT Expert
Highlights: Developed a dental assistant software in MATLAB for planning and guiding tooth surgeries using 3D printing.

**TEACHING EXPERIENCE**

2018      Teaching Assistant, Rochester Institute of Technology
Deep Learning for Computer Vision

2016 - 2017      Teaching Assistant, Rochester Institute of Technology
Image Processing and Computer Vision I
Image Processing and Computer Vision II

Fall 2013         Lecturer, Thapathali Engineering College
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

**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.