Kushal Kafle

Personal Data

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Research Interests

Machine Learning, Deep Learning, Visual Question Answering, Vision and Language

Education

Aug 2014 - Current
Ph.D. in IMAGING SCIENCE,
Chester F. Carlson Center for Imaging Science
Rochester Institute of Technology, Rochester, NY
Advisor: Dr. Christopher Kanan | **Research Group**: klab
Relevant Courses: Image Processing and Computer Vision, Human Visual System, Statistical Machine Learning, Deep Learning for Vision, Advanced Topics in Deep Learning

Oct 2008 - Dec 2012
Bachelor's Degree in ELECTRONICS AND COMMUNICATION ENGINEERING,
Institute of Engineering, Tribhuvan University, Kathmandu, Nepal
Elective Specialization: Image Processing and Pattern Recognition

Publications

- **Kafle, K.** and Kanan, C. (2017) An analysis of visual question answering algorithms. *International Conference on Computer Vision (ICCV)*.
- **Kafle, K.**, Yousefhussein, M., and Kanan, C.. (2017) Data augmentation for visual question answering. *International Natural Language Generation Conference (INLG)*.
- **Kafle, K.** and Kanan, C. (2017) Visual question answering: Datasets, algorithms, and future challenges. *Computer Vision and Image Understanding (CVIU)*.
- **Kafle, K.** and Kanan, C. (2016) Answer-type prediction for visual question answering. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*.

Research Work Experience

May 2017 - Nov 2017
RESEARCH INTERN
Adobe Research, San Jose, CA
Mentors: Dr. Scott Cohen and Dr. Brian Price
Research Group: Vision Group

July 2015 - Current
RESEARCH ASSISTANT
Chester F. Carlson Center for Imaging Science,
Rochester Institute of Technology, Rochester, NY
Advisor: Dr. Christopher Kanan | **Research Group**: klab
Topics: Deep Learning, Visual Question Answering, Natural Language Understanding

Nov 2012 - Dec 2012 | **RESEARCH ASSISTANT**
RF and Microwave Engineering Lab,
Tribhuvan University, Institute of Engineering, Kathmandu, Nepal
Tasks: Demonstrated the vulnerability of ISO/IEC14443 HF-RFID tags with regard to its use in an e-Voting system. Designed and reproduced security risks and potential attacks in laboratory.

Teaching Experience

Jan 2015 - May 2014 | **TEACHING ASSISTANT**
Chester F. Carlson Center for Imaging Science,
Rochester Institute of Technology, Rochester, NY
Under: Dr. Emmett Ientilucci | **Class**: Radiometry
Tasks: Designed, conducted, and graded laboratory exercises and homework assignments

Aug 2014 - Dec 2014 | **TEACHING ASSISTANT**
Chester F. Carlson Center for Imaging Science,
Rochester Institute of Technology, Rochester, NY
Under: Dr. Anthony Vodacek | **Class**: Fundamentals of Imaging Science
Tasks: Conducted and graded laboratory exercises

May 2013 - Oct 2013 | **LECTURER**
College of Information Technology and Engineering,
Purbanchal University, Kathmandu, Nepal
Subject: Image Processing and Pattern Recognition
Tasks: Taught one semester course. Responsibilities included lecturing and creating tutorial modules, homeworks, and programming assignments.

Other Work Experience

June 2013- Sept 2013 | **SOFTWARE DEVELOPER**
Technology Sales Pvt. Ltd. Kathmandu, Nepal
Responsibilities: Developed an end-user interface in Visual C# for smart-card based vehicle checkpoint entry system. The interface was used to track and log data obtained from smartcard readers. The functions included tracking vehicles location and issuing, renewing and verifying the permits embedded in the tag.

Apr 2013 - July 2013 | **R&D CONSULTANT**
Alternative Energy Promotion Center, Lalitpur, Nepal
Ministry of Environment and Population, Nepal Government
Tasks : Did feasibility study of remote monitoring scheme for Solar Home Systems in rural areas. Developed Prototype remote monitoring system.

Scholarships , Awards and Grants

- **Travel Award - 2016 Deep Learning Summer School**
  Registration fee waiver granted to attend deep learning summer school, 2016
- **AWS Research Grant**
  Together with Dr. Christopher Kanan. Worth $15,000 in AWS credits.
- **R&D Grant from Alternative Energy Promotion Center**
  Team Lead for grant awarded for developing prototype remote monitoring system.

- **Winner of Nationwide Design Competition**
  Team lead for the winning design for the open design competition entitled "Electronically Operated Innovative Monitoring System for Solar Home Systems installed in Rural Areas of Nepal" organized by Alternative Energy Promotion Center, Under ministry of Environment and Population, Nepal Government.
- **Scholarship from Nepal Government**
  Scholarship from Ministry of General Administration, Scholarship Division Committee. Granted only to 200 Engineering, Science and Medicine students each year across the country.
- **College Fellowship Scholarship**
  Awarded each semester based on merit by the Institute of Engineering, Tribhuvan University. Awarded on six out of eight semesters.

Skills

Deep Learning Packages	Tensorflow, Keras, Caffe, MatConvNet
Proficient in Programming	Python, Matlab, C++
Also Familiar With	C, Java, C#, IDL
Web and Databases (Basic)	HTML, CSS, JavaScript, JQuery, CherryPy, PHP, Nginx, Apache, MySQL
Operating Systems	Linux, Windows, and Mac OS

Languages

Nepali:	Mothertongue
English:	Fluent [TOEFL score of **118/120**; Equivalent IELTS score of band **9.0/9.0**]
Hindi:	Basic Reading and Conversation Skills

Reviewing

- Conferences: NIPS 2016, ICIP 2017, AAAI 2017

Membership

- IEEE, Computer Vision Foundation (CVF)

Other Interests and Activities

Photography	Previously, avid photographer of landscapes, birds, and other animals. • Top-25 in 'Hamro Nepal' (Translated 'Our Nepal') Competition/Exhibition; organized by ARTUDIO, 2012 • Finalist in 'The Best of Nepal' photo Competition/Exhibition; organzed by ROTASIA