Kushal Kafle

Personal Info

Phone: 585-314-9196 (Cell)
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Research Interests

Machine Learning, Deep Learning, Vision and Language, Visual Question Answering (VQA)

Education

Aug 2014-Present | **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
Research Topic: Vision and language, VQA

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

AAAI | Acharya, M., **Kafle, K.**, and Kanan, C. (2018). TallyQA: Answering Complex Counting Questions. *Association for the Advancement of Artificial Intelligence (AAAI 2018)*.

CVPR | **Kafle, K.**, Cohen, S., Price, B., and Kanan, C. (2018). DVQA: Understanding Data Visualizations via Question Answering. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2018)*.

ICCV | **Kafle, K.** and Kanan, C. (2017) An analysis of visual question answering algorithms. *International Conference on Computer Vision ((ICCV 2017))*.

INLG | **Kafle, K.**, Yousefhussein, M., and Kanan, C.. (2017) Data augmentation for visual question answering. *International Natural Language Generation Conference (INLG 2017)*.

CVIU | **Kafle, K.** and Kanan, C. (2017) Visual question answering: Datasets, algorithms, and future challenges. *Computer Vision and Image Understanding (CVIU)*.

CVPR | **Kafle, K.** and Kanan, C. (2016) Answer-type prediction for visual question answering. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2016)*.

Research Experience

May 2017-
Mar 2018

RESEARCH INTERN
Adobe Research, San Jose, CA
Mentors: Dr. Scott Cohen and Dr. Brian Price | **Group**: Vision Group
Topics: Vision and Language, Deep Learning, Visual Reasoning

July 2015-
Present

RESEARCH ASSISTANT
Chester F. Carlson Center for Imaging Science,
Rochester Institute of Technology, Rochester, NY
Advisor: Dr. Christopher Kanan | **Group**: klab
Topics: Deep Learning, Visual Question Answering

Nov 2012 -
Dec 2012

RESEARCH ASSISTANT
Radio Frequency (RF) and Microwave Engineering Lab,
Tribhuvan University, Institute of Engineering, Kathmandu, Nepal
Mentor: Dr. Nanda Bikram Adhikari
Topics: Theoretical study and laboratory demonstration of the security risks and potential attacks on a proposed electronic voting system based on ISO/IEC14443 HF-RFID tags.

Teaching Experience

Aug 2014 -
May 2015

TEACHING ASSISTANT
Chester F. Carlson Center for Imaging Science,
Rochester Institute of Technology, Rochester, NY
Tasks: For courses *Radiometry* and *Fundamentals of Imaging Science*

May 2013 -
Oct 2013

LECTURER
College of Information Technology and Engineering,
Purbanchal University, Kathmandu, Nepal
Tasks: Taught a semester course on *Image Processing and Pattern Recognition*

Other Work Experience

June 2013-
Sept 2013

SOFTWARE DEVELOPER (Contract)
Technology Sales Pvt. Ltd. Kathmandu, Nepal
Task: Front and back-end software-developement for a tollbooth-style vehicle checkpoint entry system using smartcard. Successfully deployed in a small-scale real-world pilot study.

Apr 2013 -
July 2013

R&D CONSULTANT
Alternative Energy Promotion Center, Lalitpur, Nepal
Ministry of Environment and Population, Nepal Government
Responsibilities: Developed a Prototype remote monitoring system for tracking the operation of Solar Home Systems installed in rural areas of Nepal.

Scholarships , Awards and Grants

- **Outstanding Reviewer**
  For Computer Vision and Pattern Recognition (CVPR 2018)

- **Travel Award - 2016 Deep Learning Summer School**
  Registration fee waiver granted to attend deep learning summer school, 2016
- **Amazon AWS Research Grant**
  Co-applied 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 National Design Competition**
  Team lead for the winning design for the nationwide design competition *"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 Ministry of General Administration, Nepal Government**
  Awarded to only 200 Engineering, Science, and Medicine students across the country.

Skills

Deep Learning Packages	Tensorflow, PyTorch, Keras, Caffe, MatConvNet
Proficient in Programming	Python, MATLAB
Also Familiar With	C, C++, Java, C#, IDL, R
Basic Web and Databases	HTML, CSS, JavaScript, JQuery, CherryPy, PHP, Nginx, Apache, MySQL
Other Skills	Git, LaTeX, Crowd-sourcing using Amazon Mechanical Turk (AMT)

Professional Services

- **Workshop Organization:** Co-organizer of Workshop on shortcomings of vision and language (SiVL) at ECCV, 2018
- **Conference Reviewing:**
  - Neural Information Processing System (NIPS) - 2016
  - International Conference on Image Processing (ICIP) - 2017
  - Computer Vision and Pattern Recognition (CVPR) - 2017, 2018
  - Association for the Advancement of Artificial Intelligence (AAAI) - 2017
- **Journal Reviewing:**
  - Computer Vision and Image Understanding (CVIU) - 2017
  - ACM Transactions on Multimedia Computing Communications and Applications (TOMM) - 2018

Languages

Nepali:	Native proficiency
English:	Full professional proficiency (TOEFL score: 118/120)
Hindi:	Limited working proficiency