SUSHANT KAFLE

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RESEARCH INTERESTS

Natural Language Processing; Human Computer Interaction, Speech Processing; Machine Learning

CURRENT POSITION

2017 **Rochester Institute of Technology**, Rochester, NY
Research Assistant, Golisano College of Computing and Information Science.
Advisor: Prof. Matt Huenerfauth

EDUCATION

Rochester Institute of Technology, Rochester, NY

2015 – **Doctor of Philosophy**, Computing and Information Science

Tribhuwan University, Pulchowk Engineering Campus, Lalitpur, Nepal

2011 – 2014 **Bachelor of Engineering (B.E.)**, Computer Engineering (GPA: 4.0)
Institute of Engineering: Pulchowk Campus, Tribhuwan University
Thesis: Interest Rate Prediction of Banks – Analyzing social-economic trend to predict the interest rate of banks.

PROFESSIONAL EXPERIENCE

2015 – **Rochester Institute of Technology**, Research Assistant,
Center for Accessibility and Inclusion Research (CAIR) Lab. Creating the Next Generation of Live-Captioning Technologies.
Advisor: Prof. Matt Huenerfauth

2014 – 2015 **Viveka Health**, Full Stack Software Developer
Created web services for eliminating fraud, waste and abuse in medical claims payment process.

2013 – 2014 **Yomari Pvt. Ltd.**, Research Intern
Socio-economic trend analysis from news to predict interest rate of banks in Nepal.

2013 **E&T Nepal Pvt. Ltd.**, Intern
Developed a GUI for realistic rendering of containers (like glass, plastic, metal etc.) and particles (like smoke, water, molten metal) using custom shaders for realistic display, and particle physics for simulating particle interaction inside a container.

2012 – 2013 **Verisk Information Technology**, Intern
Optimized and automated Quality Control pipeline used by the company.

HONORS & AWARDS

2017 Best Paper Award (ASSETS 2017)
2016 ACM ASSETS Doctoral Consortium
2015 RIT Ph.D. Merit Scholarship
2014 The College Fellowship Scholarship (during **B.E.**)
2013 Winner of Integrity Hackathon
2012 Winner of Startup Weekend Kathmandu
2011 Academic Excellence Award (during **B.E.**)
2011 Full Academic Scholarship (during **B.E.**)

PEER-REVIEWED PAPERS PUBLISHED

P.4 **Sushant Kafle**, Matt Huenerfauth. 2018. "A Corpus for Modeling Word Importance in Spoken Dialogue Transcripts." Proceedings of the 11th International Conference on Language Resources and Evaluation (LREC'18). (to appear)

P.3 Larwan Berke, **Sushant Kafle**, Matt Huenerfauth. 2018. "Methods for Evaluation of Imperfect Captioning Tools by Deaf or Hard-of-Hearing Users at Different Reading Literacy Levels." Proceedings of the 2018 ACM Conference on Human Factors in Computing Systems (CHI'18). (to appear)

P.2 **Sushant Kafle**, Matt Huenerfauth. 2017. "Evaluating the Usability of Automatically Generated Captions for People who are Deaf or Hard of Hearing." Proceedings of the 19th Annual SIGACCESS Conference on Computers and Accessibility (ASSETS'17), Baltimore, Maryland. ACM, New York, NY, USA. (**Best Paper Award**)

P.1 **Sushant Kafle**, Matt Huenerfauth. 2016. "Effect of Speech Recognition Errors on Text Understandability for People who are Deaf or Hard of Hearing." Proceedings of the 7th Workshop on Speech and Language Processing for Assistive Technologies (SLPAT), INTERSPEECH 2016, San Francisco, CA, USA.

RECENT ACADEMIC PROJECTS

2017 **Word Importance Modeling using Speech Based Features.**
Investigated various acoustic features from human speech to see if they provide clues about the importance of word being spoken; "importance" defined in terms of the contribution of the word in understanding the meaning of the spoken-utterance.
Spoken Language Technology, Spring 2017

2017 **Predicting the Usability of Captions Generated by ASR for People who are Deaf or Hard-of-Hearing.**
Investigated various linguistic features to design a novel metrics for evaluating the usability of automatically generated captions for people who are Deaf or Hard of Hearing.
Introduction to Natural Language Processing, Spring 2017

2016 **Empirical Analysis of Error Produced by Automatic Speech Recognition Systems.**
Categorized and evaluated different types of errors commonly produced by Sphinx-4 Speech Recognition System on recordings from the *LibriSpeech* Corpus. Implemented error alignment modules to account for fuzzy time-stamp matching and, one to many and many to one substitution errors. Created a local compute cluster to make the speech recognition computation faster.
Foundations of CyberInfrastructure, Spring 2016

TALKS AND POSTERS

2017 Predicting the Usability of Automatically Generated Caption for People who are Deaf or Hard of Hearing.
[*Talk*] *Graduate Research Showcase, Rochester Institute of Technology*

2017 Word Importance Modeling to Improve Automated Caption Display for People who are Deaf or Hard of Hearing.
[*Poster*] *Graduate Symposium, Rochester Institute of Technology*

2017, 2016 Modeling the Effect of Speech Recognition Errors on Text Understandability for People who are Deaf or Hard of Hearing.
[*Poster*] *Move78 Retreat '17, Rochester Institute of Technology*
[*Talk*] *ASSETS Doctorial Consortium '16*
[*Poster*] *The 14th Int'l ACM SIGACCESS Conference on Computers and Accessibility*

PROFESSIONAL MEMBERSHIP

- Association for Computing Machinery (ACM)
    - Special Interest Group: Accessible Computing (SIGACCESS)

TECHNICAL SKILLS

- Deep Learning Libraries: TensorFlow, Theano
- Programming Languages: Python, Java, MATLAB, C/C++, R.
- Markup Languages & Web: JavaScript, CSS, HTML/5; Django, Spring Framework, PHP.
- Databases & Query Languages: SQL, MySQL, PL/SQL.

**(skills sorted to indicate current work-based familiarity and exposure.)*