

## RESEARCH INTERESTS

Human-Computer Interaction; Accessibility; Natural Language Processing; Speech Processing; Machine Learning

## CURRENT POSITION

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

## EDUCATION

*Rochester Institute of Technology, Rochester, NY*

2016 –            **Doctor of Philosophy**, Computing and Information Science

*Tribhuvan University, Pulchowk Engineering Campus, Lalitpur, Nepal*

2014            **Bachelor of Engineering**, Computer Engineering (Rank: 3<sup>rd</sup> of 48, GPA: 4.0)  
Institute of Engineering: Pulchowk Campus, Tribhuvan University  
*Thesis:* Interest Rate Prediction of Banks – Analyzing social-economic trend to predict the interest rate of banks.

## HONORS & AWARDS

2017            RIT Ph.D. Merit Scholarship (2 awards)  
2016            ACM ASSETS Doctoral Consortium  
2014            The College Fellowship Scholarship (4 awards)  
2013            Winner of Integrity Hackathon  
2012            Winner of Startup Weekend Kathmandu  
2011            Full Scholarship for Bachelors in Engineering Program  
2011            Academic Excellence Award

## PROFESSIONAL EXPERIENCE

2016 –            **Rochester Institute of Technology**, Research Assistant,  
Center for Accessibility and Inclusion Research (CAIR) Lab. Creating the Next  
Generation of Live-Captioning Technologies.  
*Advisor:* Matt Huenerfauth

2014 – 2015    **Viveka Health**, 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, wood, fabric etc.) and particles (like smoke, water, molten metal) using appropriate shaders, and using particle physics for simulating particle interaction inside the container.

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

## PEER-REVIEWED PAPERS PUBLISHED

- 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 Nominee**)
- 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* in terms of the impact the word has on the understandability of whole sentence/phrase that it is a part of.  
*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 better metric to evaluate the usability of automatically generated captions for people who are Deaf or Hard of Hearing (DHH).  
*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 Sphinx4 Speech Recognition System on 100hrs of speech recordings from LibriSpeech Corpus. Implemented output 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 faster.  
*Foundations of Cyberinfrastructure, Spring 2016*

## TALKS AND POSTERS

- 2017        Word Importance Modeling to Improve Automated Caption Display for People who are Deaf or Hard of Hearing.  
**Kafle, S.**, Berke, L., Caulfield, C., and Huenerfauth, M.  
[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.  
**Kafle, S.** and Huenerfauth, M.  
[Poster] *Move78 Retreat '17, Rochester Institute of Technology*  
[Talk] *ASSETS Doctorial Consortium '16*  
[Poster] *The 14<sup>th</sup> Int'l ACM SIGACCESS Conference on Computers and Accessibility*

## PROFESSIONAL AFFILIATION & MEMBERSHIP

- Student Member of Association for Computing Machinery (ACM)

## **TECHNICAL SKILLS**

- Programming Languages: Python, Java, C/C++, MATLAB, R.
- Markup Languages & Web: HTML/5, CSS, Javascript, Django, Spring Framework, PHP.
- Databases & Query Languages: SQL, MySQL, PL/SQL.