SUSHANT KAFLE — Curriculum Vitae

Rochester Institute of Technology
Golisano College of Computing and Information Sciences
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Research Interests: Natural Language and Speech Processing; Human Computer Interaction; Human-centered Learning; Accessibility; Machine Learning.

EDUCATION

Ph.D., Golisano College of Computing and Information Sciences — **2015 – Present**
Rochester Institute of Technology (GPA: 3.89) — Rochester, New York
Thesis: Captioning Based on Automatic Speech Recognition Technology for Deaf and Hard of Hearing Users.
Advisor: Dr. Matt Huenerfauth
Committee: Drs. Cecilia O. Alm, Vicki Hanson, and Emily Prud'hommeaux

Bachelor of Engineering (B.E.), Computer Engineering — **2011 – 2015**
Central Campus Pulchowk, Tribhuwan University (GPA: 4.0) — Kathmandu, Nepal
Thesis: Interest Rate Prediction of Banks – Analyzing Social-economic Trend to Predict the Interest Rate of Banks.

WORK EXPERIENCE

Google, Research and Machine Intelligence. — **Seattle, Washington**
Software Engineering Intern (Ph.D.), Supervisor: Daniel J. Liebling — June 2018 – Sept 2018
- Towards cross-situational language learning through target (vocabulary)-based image caption generation.

Center for Accessibility and Inclusion Research (CAIR) Lab, RIT. — **Rochester, New York**
Research Assistant, Supervisor: Matt Huenerfauth — Aug 2015 – Present
- Overcoming usability challenges in the use of Automatic Speech Recognition system as a communication tool for people who are Deaf or Hard of Hearing.

GRANTS, SCHOLARSHIPS, AND AWARDS

AI for Accessibility Grant (2019). Received a $15,000 USD worth of Azure Compute Credits for the project titled "Predicting Importance of Spoken Words" as a part of Microsoft AI for Accessibility (AI4A) grant. (Significant Writing Contribution with Dr. Matt Huenerfauth.)

Best Paper Award. (2018). For "Modeling the Speech and Timing of American Sign Language to Generate Realistic Animations." at the 20th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS'18).

2018 Language Science and Computational Linguistics Student Excellence Award. (2018). For demonstration of excellence in language science/computational linguistics. Nominations are made by the Language Science Faculty and juried by the Language Science Curriculum Committee (LCC) in Spring.

Best Paper Honorable Mention. (2018). For "Methods for Evaluation of Imperfect Captioning Tools by Deaf or Hard-of-Hearing Users at Different Reading Literacy Levels." at the 2018 ACM Conference on Human Factors in Computing Systems (CHI'18).

Best Paper Award. (2017). For "Evaluating the Usability of Automatically Generated Captions for People who are Deaf or Hard of Hearing" at the 19th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS'17).

ACM ASSETS Doctoral Consortium. (2016). For "Effect of Speech Recognition Errors on Text Understandability for People who are Deaf or Hard of Hearing." at the 18th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS'16).

RIT Ph.D. Merit Scholarship. (2015 – Present). Financial support for Ph.D. studies at the Rochester Institute of Technology since August 2015.

The College Fellowship. (2011 – 2015). For academic merit and performance in each semester during the undergraduate studies. Awarded by the Institute of Engineering, Central Campus Pulchowk.

Winner of Integrity Hackathon. (2013). For "FindOut", a web application that uses interactive games to educate people about the value of integrity in work, at the Integrity Hackathon organized by Integrity Action together with Young Innovations Pvt. Ltd. Nepal.

Winner of Startup Weekend Kathmandu. (2012). For "Parikshya", an online exam preparation portal where students take mock exams and get feedback, at the first Startup Weekend in Kathmandu.

Academic Excellence Award. (2011). For excellent academic performance in the semester exam of Bachelor's in Engineering part of Computer Engineering. Awarded by the Free Student's Union at the Institute of Engineering, Central Campus Pulchowk.

Academic Scholarship. (2011 – 2015). Academic scholarship to support tuitions during the undergraduate studies at the Institute of Engineering, Central Campus Pulchowk. Awarded by Tribhuwan University, selected through a nationwide competitive exam.

PUBLICATIONS

PEER-REVIEWED JOURNAL ARTICLE

[J.1] **Sushant Kafle**, Matt Huenerfauth. 2019. "Predicting the Understandability of Imperfect English Captions for People who are Deaf or Hard of Hearing." ACM Transactions on Accessible Computing (TACCESS'19). ACM.

PEER-REVIEWED CONFERENCE ARTICLES

[P.10] **Sushant Kafle,** Peter Yeung, Matt Huenerfauth. 2019. "Evaluating the Benefit of Highlighting Key Words in Captions for People who are Deaf or Hard of Hearing." Proceedings of the 21st Annual SIGACCESS Conference on Computers and Accessibility (ASSETS'19). ACM.

[P.9] **Sushant Kafle**, Cecilia O. Alm, Matt Huenerfauth. 2018. "Fusion Strategy for Prosodic and Lexical Representations of Word Importance." Proceeding of the 20th Annual Conference of the International Speech Communication Association. (Interspeech'19).

[P.8] **Sushant Kafle**, Cecilia O. Alm, Matt Huenerfauth. 2019. "Modeling Acoustic-Prosodic Cues for Word Importance Prediction in Spoken Dialogues" Proceeding of the 8th Workshop on Speech and Language Processing for Assistive Technologies. (NAACL'19).

[P.7] Matthew Seita, Khaled Albusays, **Sushant Kafle**, Michael Stinson and Matt Huenerfauth. 2018. "Behavioral Changes in Speakers who are Automatically Captioned in Meetings with Deaf or Hard-of-Hearing Peers." Proceedings of the 20th Annual SIGACCESS Conference on Computers and Accessibility (ASSETS'18). ACM.

[P.6] Sedeeq Al-khazraji, Larwan Berke, **Sushant Kafle**, Peter Yeung and Matt Huenerfauth. "Modeling the Speech and Timing of American Sign Language to Generate Realistic Animations." Proceedings of the 20th Annual SIGACCESS Conference on Computers and Accessibility (ASSETS'18). ACM. (🎖 **Best Paper Award**)

[P.5] **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).

[P.4] Sedeeq Al-khazraji, **Sushant Kafle**, Matt Huenerfauth. 2018. "Modeling and Predicting the Location of Pauses for the Generation of Animations of American Sign Language." Proceedings of the 8th Workshop on the Representation & Processing of Sign Languages: Involving the Language Community (LREC'18).

[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). (🎖 **Best Paper Honorable Mention**)

[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). ACM. (🎖 **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. (Interspeech'16).

DOCTORAL COLLOQUIA AND NEWSLETTERS

[O.2] **Sushant Kafle**, Matt Huenerfauth. 2018. "Usability Evaluation of Captions for People who are Deaf or Hard of Hearing." ACM SIGACCESS Newsletter, October 2018 Issue.

[O.1] **Sushant Kafle.** 2016. "Effect of Speech Recognition Errors on Text Understandability for People who are Deaf or Hard of Hearing." ACM SIGACCESS Conference on Computers and Accessibility (ASSETS'16).

OTHER PRESENTATIONS

[T.2] **Predicting the Usability of Automatically Generated Caption for People who are Deaf or Hard of Hearing.**

- Graduate Research Showcase (RIT), 2017

[T.1] **Modeling the Effect of Speech Recognition Errors on Text Understandability for People who are Deaf or Hard of Hearing.**

- ASSETS Doctorial Consortium, 2016

[P.4] **Captioning Based on Automatic Speech Recognition for People who are Deaf or Hard of Hearing.**
- Human Computer Interaction Consortium (HCIC) Workshop: Future to Work, 2019

[P.3] **Modeling Acoustic-Prosodic Cues for Word Importance Prediction in Spoken Dialogues.**
- AI@GCCIS Golisano College Research & Innovation Showcase, 2018
- Graduate Research Showcase (RIT), 2018

[P.2] **Word Importance Modeling to Evaluate Caption Quality for People who are Deaf or Hard of Hearing.**
- Graduate Symposium (RIT), 2016

[P.1] **Modeling the Effect of Speech Recognition Errors on Text Understandability for People who are Deaf or Hard of Hearing.**
- Move78 Retreat (RIT), 2016
- Effective Access Technologies Conference, 2015

PRESS AND BLOG MENTIONS

[6] Featured in RIT University News, in a December 3, 2018 story entitled "RIT Graduate Showcase puts innovative student research on display." http://www.rit.edu/news/story.php?id=68740

[5] Featured in RIT Golisano College of Computing and Information Sciences news, in a November 27, 2018 story entitled "RIT researcher awarded Best Paper for a record fourth time at premier computing accessibility conference." https://www.rit.edu/gccis/news/rit-researcher-awarded-best-paper-record-fourth-time-premier-computing-accessibility-conference

[4] Featured in RIT Reporter Magazine on October 24, 2018 in a segment entitled "RIT Mobile: Room for Improvement", which discusses the accessibility of the RIT Mobile. https://reporter.rit.edu/tech/rit-mobile-room-improvement

[3] Featured in BBC Click video on December 5, 2017, Science and Technology news, British Broadcasting Corporation, in a segment entitled "When Disability Meets Technology," which demonstrated research on speech recognition tools for meetings for students who are Deaf or Hard of Hearing.
- Featured in the January 5, 2018, edition of RIT in the Headlines.
- Featured in the December 8, 2017, edition of RIT News and Events Daily.

[2] Featured in RIT University News, in the November 28, 2017 issue, in an article entitled "RIT researchers make big splash at international computing accessibility conference." http://www.rit.edu/news/story.php?id=65131

[1] Featured in RIT Golisano College of Computing and Information Sciences news, in a November 12, 2017 story entitled "RIT researchers make prolific contributions at leading accessibility research conference." https://www.rit.edu/gccis/news/rit-researchers-make-prolific-contributions-leading-accessibility-conference

ACADEMIC AND PROFESSIONAL SERVICE

PROFESSIONAL SERVICE

- **Reviewer.** Pattern Recognition Letters, International Association for Pattern Recognition. **2019**
- **Reviewer.** 2019 Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL) **2019**
- **Information Director.** ACM Special Interest Group on Accessible Computing (SIGACCESS). **2019**
- **Reviewer.** ACM Conference on Human Factors in Computing Systems (CHI). **2018**
- **Program Committee.** Mid-Atlantic Student Colloquium on Speech, Language and Learning (MASC-SLL). **2018**
- **Panelist.** NSF Research Experience for Undergraduates discussion at RIT. (Hosted by Dr. Cecilia O. Alm). **2017**

ACADEMIC SERVICE

- **Student Ambassador.** Office of Career Services at the Rochester Institute of Technology. **2017**
- **Department Student Volunteer.** Student Volunteer in the Department of Electronics and Computer Engineering at Central Campus Pulchowk. **2014**

PEER MENTORING

- **Diptanu Sarkar,** M.S. in Computer Science (RIT)
- **Peter Yeung,** M.S. in Human Computer Interaction (RIT) **2019**
- **Prionti Nasir**, M.S. in Computer Science (RIT) **2019**
- **Abraham Glasser**, Ph.D. in Computing and Information Sciences (RIT) **2019**
- **Oliver Alonzo**, Ph.D. in Computing and Information Sciences (RIT) **2019**
- **Rahul Shah**, B.S. in Human Centered Computing (RIT) **2018**
- **Tomomi Takechu.** M.S. in Human Computer Interaction (RIT) **2017**
- **Christopher Caulfield,** B.S. in Information Technology (RIT) **2017**

AFFILIATIONS AND MEMBERSHIP

Association of Computation Linguistics (ACL) **2019**

ACM Special Interest Group for Computer-Human Interaction (SIGCHI) **2017**

ACM Special Interest Group on Accessible Computing (SIGACCESS) **2017**

Special Interest Group on Speech and Language Processing for Assistive Technologies (SLPAT) **2016**

Association for Computing Machinery (ACM) **2016**

SKILLS

Deep Learning Packages	TensorFlow, Keras
Programming Languages	Python, Java, C/C++, MATLAB, R.
Other Skills	Crowd-sourcing (Amazon Mechanical Turk)