

Rohit Kumar

EXPERIENCE

- Building speech and language technologies for 15 years
- Hands-on approach to leading and developing teams
- Experienced in collaborating across business functions
- Excellent business and research writing skills (60+ publications, 1000+ citations)

EMPLOYMENT

Spotify (April 2017 – present)

Senior Researcher

- Technical contributions to (1) speech and dialog products, (2) modeling interaction patterns
- Participating in preliminary explorations into product relevant conversation technologies
- Planning & prioritization of voice technology research

Raytheon BBN Technologies (2011 – 2017)

Senior Scientist

- Technical lead for a DARPA sponsored **speech translation** project. My team achieved top scores on evaluation metric (conversational goal achievement) across all systems evaluated. Conceived and developed rapid customization functionality that outperformed all evaluated systems
- Wrote a contract winning proposal to the US Navy; Created an **online learning platform** for high school students; Directed R&D efforts for developing intelligent tutoring systems
- Individual contributions to student behavior modeling (example tracing) and speech translation system (error detection & recovery, multimodal interaction)

Alelo (2008)

Research Internship

- Individual contributions to development and evaluation of authoring tools for training systems

Language Technologies Institute (LTI), Carnegie Mellon University (CMU) (2005 – 2011)

Graduate Research Assistant

- Individual contributions to conversational agents (reusable behavioral components), collaborative learning (social interaction) & dialog systems (trigger models)

Language Technologies Research Center (LTRC), IIIT Hyderabad (2003 – 2005)

Research Scientist

- Individual contribution to text-to-speech (TTS) engine, porting to mobile platform (unit pruning algorithms) and telephony-based infrastructure development for speech data collection

EDUCATION

Doctor of Philosophy in Language and Information Technologies (2011)

Language Technologies Institute, Carnegie Mellon University, Pittsburgh, Pennsylvania

Dissertation: Socially Capable Conversational Agents for Multi-Party Interactive Situations

Master of Science in Language Technologies (2007)

Language Technologies Institute, Carnegie Mellon University, Pittsburgh, Pennsylvania

Bachelor of Engineering with Honors (2003)

Punjab Engineering College, Punjab University, Chandigarh, India

Major: Computer Science and Engineering

SELECTED PUBLICATIONS

Publications & patents span various artificial intelligence and language technology topics including: conversational agents, speech translation, intelligent tutoring, collaborative learning, error detection, behavior modeling, tutorial dialog, dialog systems, authoring tools and speech synthesis

Rohit Prasad, Rohit Kumar, Shankar Ananthakrishnan, Sanjika Hewavitharana, Matthew Roy, Frederick Choi, **Active error detection and resolution for linguistic translation**, US Patent 9710463, 2017

Rohit Kumar, Carolyn P. Rosé, **Triggering Effective Social Support for Online Groups**, ACM Trans. on Interactive Intelligent Systems, 2014, vol. 3.4

Rohit Kumar, Matthew Roy, R. Bruce Roberts, John Makhoul, **Towards automatically building tutor models using multiple behavior demonstrations**, Intelligent Tutoring Systems (ITS), 2014

Rohit Kumar, Rohit Prasad, Shankar Ananthakrishnan, Aravind Vembu, Dave Stallard, Stavros Tsakalidis, Prem Natarajan, **Detecting OOV Named Entities in Conversational Speech**, Interspeech, 2012

Rohit Kumar, Carolyn P. Rosé, **Architecture for building Conversational Agents that support Collaborative Learning**, IEEE Transactions on Learning Technologies, 2011, vol. 4.1

Rohit Kumar, Hua Ai, Jack Beuth, Carolyn P. Rosé, **Socially-capable Conversational Tutors can be Effective in Collaborative-Learning situations**, Intelligent Tutoring Systems (ITS), 2010

Rohit Kumar, Carolyn P. Rosé, Mahesh Joshi, Yi-Chia Wang, Yue Cui, Allen Robinson, **Tutorial Dialogue as Adaptive Collaborative Learning Support**, Intl. Conf. on AI in Education (AIED), 2007

Rohit Kumar, S. P. Kishore, **Automatic Pruning of Unit Selection Speech Databases for Synthesis without Loss of Naturalness**, Interspeech, 2004

Full listing as well as digital copies of publications are available

SERVICE & RECOGNITION

Professional Society IEEE Senior Member (Since 2014), Richard E. Merwin Scholarship (2003)

Awards ELC Learning Champion (2016), BBN SDP Publication Award (2014, 2015), PEC Undergraduate Silver Medal (2003)

Guest Editor IJAIED Special Issue on Intelligent Support for Learning in Groups (ISLG) 2013

Invited Talks UCLA (2016), NATO-STO (2015), IIIT-H (2014), CMU (2010), PITT (2009)

SOFTWARE DEVELOPMENT

Current Projects Java, Scala, BigQuery, Google Cloud, MacOS, Linux

Other JavaScript, C++, Perl, Bash script, PHP, JNI, Weka, SGE, Scio, MySQL, Elasticsearch, SQLite, SVM-Light, OpenNLP, SRILM, CMU SLM Toolkit, Mallet, CRF++, Phoenix Parser, Stanford Parser, OpenNI for Kinect, OpenCV, JSpeex, CMU Flite, GraphViz, Dojo, SigmaJS, MathJax, Tomcat, JGit, Minitab