

Rohit Kumar

SUMMARY

- Top tier PhD in AI with 9 years work experience in AI/Speech/NLP/ML technology areas
- Individual contributor roles: Graduate level (4 years), Senior level (5 years)
- Familiar with both research as well as production work environments
- Technical leadership (2 different projects, small-medium teams, 2.5 years)
- People management (1 direct report, 2 years)
- Business development experience: Proposal writing & cross-functional collaboration
- Excellent scientific publication record (60+ papers, 1000+ citations, 1 patent awarded, 2 pending)

EMPLOYMENT

Spotify

Senior Researcher (April 2017 – present)

- Implemented various NLP/Speech technical capabilities
 - Natural language generation systems (Small team, Technical lead)
 - Spoken language summarization (Individual contribution)
 - Voice interaction patterns modeling (Individual contribution)
 - Session level voice interaction metrics (individual contribution)
- Developed prototypes for voice-initiated content consumption
 - Differentiated voice experience concepts
 - Iterative refinement of voice interaction design
- Evangelized technology platform advancement for conversational systems through
 - Quantitative analysis of multi-turn voice use-cases
 - Technology feasibility analysis
 - Technical proposal writing

Raytheon BBN Technologies

Senior Scientist (April 2015 – March 2017)

- Led engineers, scientists and linguists through a DARPA sponsored speech translation project
 - Achieved leading average score on primary metric (conversational goal achievement) across all system variations evaluated
 - Conceived and developed domain customization functionality that outperformed all evaluated systems
- Supported business development activities for both US government as well as international customers through
 - Proposal writing & customer presentations
 - Technology evangelism activities: Panels, trade-shows and conferences

Scientist II (April 2014 – March 2015)

- Led engineers, contractors and subject matter experts to build a web-based adaptive learning platform for high-school students
- Made individual contributions to

- Real time speech-to-speech translation systems
- Adaptive learning systems (Student modeling and Example tracing)

Scientist (October 2011 – March 2014)

- Wrote a proposal to US Navy
 - Was awarded a contract (\$2M+) to develop adaptive learning systems
- Individual contributions to speech translation system
 - Error detection
 - Interactive recovery from system errors through dialog
 - Multimodal interaction
 - Architecture and component integration

Alelo

Research Intern (August 2008 – December 2008)

- Individual contributions to immersive training systems
 - Built tools for subject matter experts
 - System evaluation and publication

Language Technologies Institute, Carnegie Mellon University

Graduate Research Assistant (July 2005 – September 2011)

- Individual contributions to
 - Conversational agents (reusable behaviors)
 - Collaborative learning (adaptive learning, social interaction)
 - Dialog systems (event-based dialog models)

IIIT Hyderabad

Research Scientist (July 2004 – May 2005)

- Individual contributions to
 - Scaling TTS systems to multiple regional languages
 - Embedded TTS development (speed and size optimizations)
 - Telephony/IVR software development

Research Engineer (July 2003 – June 2004)

- Individual contributions to
 - Concatenative Text-to-speech (TTS) engine
 - Prototyping speech interfaces

EDUCATION

Doctor of Philosophy in Language and Information Technologies (2011)

Language Technologies Institute, Carnegie Mellon University

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

Master of Science in Language Technologies (2007)

Language Technologies Institute, Carnegie Mellon University

Bachelor of Engineering with Honors (2003)

Punjab Engineering College, Punjab University

Major: Computer Science and Engineering

SELECTED PUBLICATIONS

Publications & patents spanning various artificial intelligence, NLP and speech technology topics

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 via Google Scholar

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)

Serve on various conference and workshop committees

SOFTWARE DEVELOPMENT

Current Projects	Java, Scala, BigQuery, Google Cloud
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