Chitralekha Gupta

Contact Information

AS-06, Media Research Lab 7,
Computer Science Department,
National University of Singapore

Web: http://www.comp.nus.edu.sg/~chitrale
E-mail: chitralekha@u.nus.edu
GitHub: https://github.com/chitralekha18

Summary

I am a PhD candidate specializing in speech and singing voice analysis, involving audio signal processing, machine learning, linguistics, and psychoacoustics. I am interested in pursuing a career in audio technology. I am an enthusiastic learner, passionate about solving real-world problems, and I believe audio technology can make a significant contribution.

Research Interests

Speech and singing voice analysis, music information retrieval, applications of music in education and health therapy.

Education

Ph.D. (Ongoing) Jan. 2015 - Present
National University of Singapore
NUS Graduate School for Integrative Sciences and Engineering (Dept. of Comp. Sci.); CAP: 4.38/5.0
Thesis: A comprehensive framework for evaluation of singing voice
Advisor: Haizhou Li and Ye Wang

Master of Technology 2008 - 2011
Indian Institute of Technology Bombay
Specialization: Communication & Signal Processing (Dept. of Electrical Engg.); *GPA:* 9.63/10.0
Thesis: Objective assessment of ornaments in Indian singing
Advisor: Preeti Rao

Bachelor of Engineering 2004 - 2008
M.S. University, Baroda
Specialization: Electronics; *GPA:* 3.8/4.0
Thesis: An obstacle detector for the visually challenged
Advisor: M. S. Gosavi

Work Experience

1. **Internship at Sound and Music Computing Lab, NUS** Aug 2014 – Dec 2014
   Worked on singing and ear training application design for children with cochlear implants.
2. **Research Engineer at EADS Cassidian, Bangalore** March 2013 - July 2014
   Worked on clutter rejection techniques for Radar applications.
3. **Software Developer at Dell R&D, Bangalore** Aug 2011 - Feb 2013
   Worked as a part of the Dell Remote Access Controller team developing a scriptable interface for local and remote control of a Dell server.

Selected Honors and Awards

- **Research Achievement Award**, School of Computing, NUS, 2018.
- **School of Computing Innovation Prize, NUS** (Team), for *SLIONS: Singing and Listening to Improve Our Natural Speaking*, an application for language learning through singing, 2018.
- **Best Student Paper Award**, for the paper *Perceptual Evaluation of Singing Quality* at APSIPA 2017.
- **NGS Scholarship**, National University of Singapore, 2015-Present
- **Best Employee of the Quarter**, EADS Cassidian, Bangalore, 2014

Publications

1. **Chitralekha Gupta**, Haizhou Li, and Ye Wang, *Automatic Evaluation of Singing Quality without a Reference*
   Accepted for: APSIPA ASC 2018, Hawaii.
2. **Chitralekha Gupta**, Haizhou Li, and Ye Wang, *A Technical Framework for Automatic Perceptual Evaluation of Singing Quality*
   Accepted for: APSIPA Transactions on Signal and Information Processing, May 2018.
3. **Chitralekha Gupta**, Haizhou Li, and Ye Wang, *Automatic Pronunciation Evaluation of Singing*
   Accepted for: *Interspeech 2018.*
4. **Chitralekha Gupta**, Rong Tong, Haizhou Li, and Ye Wang, *Semi-supervised Lyrics and Solo-Singing Alignment*
   Accepted for*: ISMIR 2018.*
5. Michael Mustaine, Karim Ibrahim, **Chitralekha Gupta**, and Ye Wang, *Empirically weighing the importance of decision factors when selecting music to sing*
   Accepted for*: ISMIR 2018.*
6. **Chitralekha Gupta**, Haizhou Li, and Ye Wang, *Perceptual Evaluation of Singing Quality*
   In Proceedings of Asia-Pacific Signal and Information Processing Association (APSIPA), Kuala Lumpur, Dec. 2017 **(Best Student Paper Award)**.
7. Douglas Turnbull, **Chitralekha Gupta**, Dania Murad, Michael Barone, and Ye Wang, *Using Music Technology to Motivate Foreign Language Learning*
   In Proceedings of International Conference on Orange Technologies (ICOT), Singapore, Dec. 2017.
8. **Chitralekha Gupta**, David Grunberg, Preeti Rao, and Ye Wang, *Towards automatic mispronunciation detection in singing*
   In Proceedings of International Society of Music Information Retrieval (ISMIR), Suzhou, Oct. 2017.
9. Karim Magdi, David Grunberg, Kat Agres, **Chitralekha Gupta**, and Ye Wang, *Intelligibility of Sung Lyrics: A Pilot Study*,
   In Proceedings of International Society of Music Information Retrieval (ISMIR), Suzhou, Oct. 2017.
10. Zhiyan Duan, **Chitralekha Gupta**, Graham Percival, David Grunberg, and Ye Wang, *SECCIMA: Singing and Ear Training for Children with Cochlear Implants via a Mobile Application*
    In Proceedings of Sound and Music Computing (SMC), Helsinki, July 2017.
11. **Chitralekha Gupta** and Preeti Rao, *Objective Assessment of Ornamentation in Indian Classical Singing*,
    S. Ystad et al. (Eds.): CMMR/FRSM 2011, Springer Lecture Notes on Computer Science (LNCS) 7172, pp. 1-25, 2012. *(Masters thesis work)*
12. Vishweshwara Rao, **Chitralekha Gupta**, and Preeti Rao, *Context-aware features for singing voice detection in polyphonic music*, *In 9th International Workshop on Adaptive Multimedia Retrieval*, Barcelona, July 2011.
13. Ashish Patil, **Chitralekha Gupta** and Preeti Rao, *Evaluating Vowel Pronunciation Quality: Formant Space Matching versus ASR Confidence Scoring*,
    In Proceedings of 16th National Conference on Communications, IIT Madras, Chennai, Jan. 2010.

Software Engg. Skills

Programming/Scripting Languages: Python, Matlab, C, C++, Java, Javascript, HTML, PHP
Programming Tools: Kaldi speech recognition toolkit, Tensorflow
Version Control Tools: Git, SVN

References

Dr. Haizhou Li (PhD advisor)
Professor
Dept. of Electrical Engg.
National University of Singapore
Email: haizhou.li@nus.edu.sg

Dr. Ye Wang (PhD advisor)
Associate Professor
Dept. of Comp. Sci.
National University of Singapore
Email: wangye@comp.nus.edu.sg

Dr. Preeti Rao (MTech advisor)
Professor
Dept. of Electrical Engg.
IIT Bombay, India
Email: prao@ee.iitb.ac.in