

Chitrlekha Gupta, Post-Doctoral Research Fellow and Founder of MuSigPro Pte. Ltd.

CONTACT INFORMATION	E4-06-20, Human Language Technology Lab, Electrical and Computer Engg. Dept., National University of Singapore	Web: https://chitrlekha18.github.io/chitrlekha/ E-mail: chitrlekha@nus.edu.sg GitHub: https://github.com/chitrlekha18 Start-up: https://musigpro.com
RESEARCH INTERESTS	Speech and singing voice analysis and synthesis, music information retrieval, applications of ASR in music, applications of music in education and health therapy.	
EDUCATION	<p>Ph.D. 2015 - 2019 National University of Singapore NUS Graduate School for Integrative Sciences and Engineering (Dept. of Comp. Sci.); CAP: 4.38/5.0 <i>Thesis</i>: Comprehensive evaluation of singing quality <i>Advisor</i>: Haizhou Li and Ye Wang</p> <p>Master of Technology 2008 - 2011 Indian Institute of Technology Bombay <i>Specialization</i>: Communication & Signal Processing (Dept. of Electrical Engg.); <i>GPA</i>: 9.63/10.0 <i>Thesis</i>: Objective assessment of ornaments in Indian singing <i>Advisor</i>: Preeti Rao</p> <p>Bachelor of Engineering 2004 - 2008 M.S. University, Baroda <i>Specialization</i>: Electronics; <i>GPA</i>: 3.8/4.0 <i>Thesis</i>: An obstacle detector for the visually challenged <i>Advisor</i>: M. S. Gosavi</p>	
SELECTED HONORS AND AWARDS	<ul style="list-style-type: none">• NUS Graduate Research Innovation Program (GRIP) Award, July 2019, a start-up grant for MuSigPro Pte. Ltd.• MIREX 2019 Our “Automatic Lyrics-to-Audio Alignment” system has outperformed all other systems in the International Music Information Retrieval Evaluation eXchange platform 2019. (Mirex Results)• NUS Dean’s Graduate Research Achievement Award, School of Computing, NUS, 2018.• School of Computing Innovation Prize, NUS (Team), for <i>SLIONS: Singing and Listening to Improve Our Natural Speaking</i>, an application for language learning through singing, 2018.• Best Student Paper Award, for the paper <i>Perceptual Evaluation of Singing Quality</i> at APSIPA 2017.• NGS Scholarship, National University of Singapore, 2015-Present• Best Employee of the Quarter, Airbus Defense and Space, Bangalore, 2014• Recognized Disclosure, Dell R&D, Bangalore, 2013: “Applying state-of-the-art speech recognition tools for improved user experience in enterprise servers” (Awarded to the best novel proposals)	
WORK EXPERIENCE	<ol style="list-style-type: none">1. Founder and CEO of MuSigPro Pte. Ltd. Aug 2019 – Present An online gamified singing contest platform powered by the state-of-the-art AI judge to evaluate singing quality that motivates users to learn and improve singing skills.2. Research Fellow at Human Language Technology Lab, ECE, NUS Feb 2019 – Present Singing voice evaluation, applications of ASR in music, singing voice synthesis.	

3. **Internship at Sound and Music Computing Lab, NUS** Aug 2014 – Dec 2014
Singing and ear training application design for children with cochlear implants.
4. **Research Engineer at Airbus Defense and Space, Bangalore** March 2013 - July 2014
Clutter rejection techniques for radar applications.
5. **Software Developer at Dell R&D, Bangalore** Aug 2011 - Feb 2013
Developing a scriptable interface for local and remote control of Dell servers.

PUBLICATIONS

1. **Chitrlekha Gupta**, Emre Yilmaz, and Haizhou Li, *Automatic Lyrics Alignment and Transcription in Polyphonic Music: Does Background Music Help?*
Submitted to ICASSP, 2020.
2. **Chitrlekha Gupta**, Emre Yilmaz, and Ye Wang, *Automatic Leaderboard: Evaluation of Singing Quality without a Standard Reference*
IEEE/ACM Transactions on Audio, Speech, and Language Processing, 2019.
3. **Chitrlekha Gupta**, Emre Yilmaz, and Haizhou Li, *Acoustic Modeling for Automatic Lyrics-to-Audio Alignment*
In Proceedings of Interspeech, Graz, 2019.
4. **Chitrlekha Gupta***, Bidisha Sharma*, Haizhou Li, and Ye Wang, *Automatic lyrics-to-audio alignment on polyphonic music using singing-adapted acoustic models*
In Proceedings of ICASSP, Brighton, 2019 (*equal contributors).
5. **Chitrlekha Gupta**, Haizhou Li, and Ye Wang, *Automatic Evaluation of Singing Quality without a Reference*
In Proceedings of Asia-Pacific Signal and Information Processing Association (APSIPA), Hawaii, 2018.
6. **Chitrlekha Gupta**, Haizhou Li, and Ye Wang, *A Technical Framework for Automatic Perceptual Evaluation of Singing Quality*
APSIPA Transactions on Signal and Information Processing, Vol. 7, Cambridge University Press, 2018.
7. **Chitrlekha Gupta**, Haizhou Li, and Ye Wang, *Automatic Pronunciation Evaluation of Singing*
In Proceedings of Interspeech, Hyderabad, 2018.
8. **Chitrlekha Gupta**, Rong Tong, Haizhou Li, and Ye Wang, *Semi-supervised Lyrics and Solo-Singing Alignment*
In Proceedings of International Society of Music Information Retrieval (ISMIR), Paris, 2018.
9. Michael Mustaine, Karim Ibrahim, **Chitrlekha Gupta**, and Ye Wang, *Empirically weighing the importance of decision factors when selecting music to sing*
In Proceedings of International Society of Music Information Retrieval (ISMIR), Paris, 2018.
10. **Chitrlekha Gupta**, Haizhou Li, and Ye Wang, *Perceptual Evaluation of Singing Quality*
In Proceedings of Asia-Pacific Signal and Information Processing Association (APSIPA), Kuala Lumpur, 2017 (**Best Student Paper Award**).
11. Douglas Turnbull, **Chitrlekha 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, 2017.
12. **Chitrlekha 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, 2017.
13. Karim Magdi, David Grunberg, Kat Agres, **Chitrlekha Gupta**, and Ye Wang, *Intelligibility of Sung Lyrics: A Pilot Study*
In Proceedings of International Society of Music Information Retrieval (ISMIR), Suzhou, 2017.

14. 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, 2017.
15. **Chitralekha Gupta**, Kaushal Jadia, Avik Santra, and Rajan Srinivasan *Spectral Estimation of Clutter for Matched Illumination*, In *Proceedings of International Radar Symposium India (IRSI)*, Bangalore, Dec. 2013.
16. **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)
17. 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.
18. 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.

PATENT (PENDING) Inventors: Chitralekha Gupta, Haizhou Li, and Ye Wang,
Invention: “Automatic Leaderboard: Evaluation of Singing Quality without a Standard Reference”;
as described in Singapore Patent Application No. 10201907238Y filed on 5 August 2019.

DEMOS

- **MuSigPro**: Chitralekha Gupta, and Haizhou Li, “Automatic Leaderboard Generation of Singers using Reference-Independent Singing Quality Evaluation Methods”, *presented at ASRU 2019*.
[Web Platform](#), [Demo Video](#)
- **Speak-to-Sing**: Chitralekha Gupta, Karthika Vijayan, Bidisha Sharma, Xiaoxue Gao, and Haizhou Li, “A Personalized Speech-to-Singing Conversion System”, *presented at Interspeech 2019*.
[Web Platform](#), [Poster](#)

SOFTWARE
ENGG. SKILLS

Programming/Scripting Languages: Python, Matlab, C, C++, Java, Javascript, HTML, PHP
Programming Tools: Kaldi speech recognition toolkit, Tensorflow, Pytorch, Pytorch-kaldi
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
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