Md Nasir

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Education

2013– **PhD, Electrical Engineering**, *University of Southern California (USC)*, Los Angeles, CA.
advisors: Prof. Shrikanth Narayanan and Prof. Panayiotis Georgiou
gpa: 3.95/4.0

2013–2015 **MS, Electrical Engineering**, *University of Southern California (USC)*, Los Angeles, CA.
gpa: 3.97/4.0

2009–2013 **Bachelor of Engineering, Electronics and Telecommunication**, *Jadavpur University*, India.
gpa: 9.38/10.00

Experience

2013– **Research Assistant**, *University of Southern California*, Los Angeles, CA.
Working under Prof. Shri Narayanan and Prof. Panos Georgiou on projects within Signal Analysis and Interpretation Lab (SAIL) and SCUBA labs. Working on developing new algorithms to utilize speech processing and machine learning tools in mental health applications, also known as behavioral signal processing. Other works include multiple annotator modelling, speech enhancement, acoustic analysis of multimedia content (*e.g.* movies) etc.

2010–2013 **Undergraduate Research Assistant**, *Jadavpur University*, Kolkata, India.
Worked under Prof Swagatam Das on numerical optimization using evolutionary computation

summer 2012 **Intern**, *India Institute of Science*, Bangalore, India.
Worked under Prof. Debasish Ghose on boundary estimation of contaminants, such as oil spill or volcanic eruption using mobile sensor networks

Research Interests

speech — Speech Processing and Enhancement, Speech Recognition, Speaker Diarization, Modeling of Conversational Dynamics of Speech

machine learning and statistics — Multiple annotator modelling, Time Series Analysis, Classification and Clustering applications, Complexity, Chaos and Non-linear Dynamics

behavioral signal processing — Multimodal Analysis and Prediction of Behavior with applications Couples Therapy, Depression and Suicide Prevention

Publications

[1] M. Nasir, A. Jati, P. G. Shivakumar, S. Nallan Chakravarthula, and P. Georgiou, "Multimodal and multiresolution depression detection from speech and facial landmark features," in *Proceedings of the 6th International Workshop on Audio/Visual Emotion Challenge*, pp. 43–50, ACM, 2016.

[2] K. Somandepalli, R. Gupta, M. Nasir, B. M. Booth, S. Lee, and S. Narayanan, "Online

affect tracking with multimodal kalman filters," in *Proceedings of the 6th International Workshop on Audio/Visual Emotion Challenge*, pp. 59–66, ACM, 2016.

[3] N. Kumar, M. Nasir, P. Georgiou, and S. Narayanan, "Robust multichannel gender classification from speech in movie audio," *INTERSPEECH*, pp. 2233–2237, 2016.

[4] M. Nasir, B. Baucom, S. Narayanan, and P. Georgiou, "Predicting couple therapy outcomes based on speech acoustic features," *submitted to PLoS ONE*.

[5] M. Nasir, B. Baucom, S. Narayanan, and P. Georgiou, "Complexity in prosody: A nonlinear dynamical systems approach for dyadic conversations; behavior and outcomes in couples therapy," *INTERSPEECH*, pp. 893–897, 2016.

[6] J. Kim, M. Nasir, R. Gupta, M. Van Segbroeck, D. Bone, M. P. Black, Z. I. Skordilis, Z. Yang, P. G. Georgiou, and S. S. Narayanan, "Automatic estimation of parkinson's disease severity from diverse speech tasks.," in *INTERSPEECH*, pp. 914–918, 2015.

[7] M. Nasir, W. Xia, B. Xiao, B. Baucom, S. Narayanan, and P. Georgiou, "Still together?: The role of acoustic features in predicting marital outcome," in *INTERSPEECH*, (Dresden, Germany), September 2015.

[8] M. Nasir, B. Baucom, P. Georgiou, and S. Narayanan, "Redundancy analysis of behavioral coding for couples therapy and improved estimation of behavior from noisy annotations," in *Acoustics, Speech and Signal Processing (ICASSP), 2015 IEEE International Conference on*, pp. 1886–1890, IEEE, 2015.

[9] M. Nasir, S. Das, D. Maity, S. Sengupta, U. Halder, and P. N. Suganthan, "A dynamic neighborhood learning based particle swarm optimizer for global numerical optimization," *Information Sciences*, vol. 209, pp. 16–36, 2012.

[10] S. Sengupta, S. Das, M. Nasir, A. V. Vasilakos, and W. Pedrycz, "An evolutionary multi-objective sleep-scheduling scheme for differentiated coverage in wireless sensor networks," *IEEE Transactions on Systems, Man, and Cybernetics, Part C (Applications and Reviews)*, vol. 42, no. 6, pp. 1093–1102, 2012.

Selected Coursework

graduate courses: Machine Learning, Pattern Recognition, Speech Processing, Natural Language Processing, Affective Computing, Random Process, Wavelets, Statistical Signal Processing

Technical Experience

Proficient With

languages: Python, Matlab

technologies: Kaldi, Bash Scripting, Git, Vim, Linux, Windows, LaTeX, HPCC Computing Cluster

Have Experience With

languages: C, C++, C#, Perl, HTML, PHP

technologies: Visual Studio, Eclipse, .NET

Honors and Achievements

fellowships: Awarded *Kishore Vaigyanik Protsahan Yojana (KVPY)* fellowship by Department of Science and Technology, Govt. of India

Awarded *National Talent Search* scholarship by Govt. of India

Offered Ph.D. Fellowship by University of Pennsylvania, Vanderbilt University

Others Selected in *Indian National Math Olympiad* (INMO)

Activities

2016– **International Speech Communication Association-Student Advisory Committee**.
Member of the student organizing committee of Interspeech 2017.

2013–2014 **Vidushak (performance art group)**, *USC*, Los Angeles, CA.
Performed as a member of the university *improv* drama group.

2010–2013 **Sankalpa (non-profit organization)**, Kolkata, India.
Involved in scientific projects for rural development and social entrepreneurship.