

# Erfan Loweimi

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## CONTACT INFORMATION

Speech and Hearing Research Group (SPandH),  
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## RESEARCH INTERESTS

Robust Automatic Speech Recognition  
Deep Learning  
Phase-based Speech Signal Processing

## EDUCATION

**University of Sheffield**, Sheffield, UK

Ph.D., Computer Science, February 2018

- Thesis Title: *Robust Phase-based Speech Signal Processing; From Source-Filter Separation to Model-Based Robust ASR*
- Supervisors: Jon Barker, Professor and Thomas Hain, Professor

**Amirkabir University of Technology (Tehran Polytechnic)**, Tehran, Iran

M.Sc., Electronics Engineering, July 2010

- GPA: 17.35 out of 20
- Courses: Automatic Speech Recognition, Digital Signal Processing, Statistical Signal Processing, Advanced Topics in Signal Processing, Biological Signal Processing, Special Topics in Communications (Kalman and Particle Filters), Statistical Pattern Recognition, Neural Networks, Microprocessors II, Seminar
- Dissertation Title: *On the Importance of Phase in Robust Speech Recognition*
- Supervisor: Seyed Mohammad Ahadi, Professor
- Advisor: Hamid Sheikhzadeh, Associate Professor
- Grade: 20 out of 20

**Shahid Chamran University of Ahvaz**, Ahvaz, Iran

B.Sc., Electronics Engineering, Feb 2007

- GPA: 17.11 out of 20
- Final Project: *Software-Defined Radio*
- Supervisor: Hooman Kaabi, Assistant Professor

## PUBLICATIONS

1. E. Loweimi, J. Barker, and T. Hain, "On the usefulness of the speech phase spectrum for pitch extraction", *INTERSPEECH* 2018.
2. E. Loweimi, J. Barker, and T. Hain, "Exploring the use of group delay for generalised VTS based noise compensation", *ICASSP* 2018.
3. E. Loweimi, J. Barker, and T. Hain, "Channel Compensation in the Generalised Vector Taylor Series Approach to Robust ASR", *INTERSPEECH* 2017.
4. E. Loweimi, J. Barker, O. Saz Torralba, and T. Hain, "Robust Source-Filter Separation in the Phase Domain", *INTERSPEECH* 2017.
5. E. Loweimi, J. Barker, and T. Hain, "Statistical Normalisation of Phase-based Feature Representation for Robust Speech Recognition", *ICASSP* 2017.

6. E. Loweimi, J. Barker, and T. Hain, Use of Generalised Nonlinearity in Vector Taylor Series Noise Compensation for Robust Speech Recognition, *INTERSPEECH* 2016.
7. E. Loweimi, J. Barker, and T. Hain, Source-filter separation of speech signal in the phase domain, *INTERSPEECH* 2015.
8. E. Loweimi, M. Doulaty, J. Barker, and T. Hain, Long-term statistical feature extraction from speech signal and its application in emotion recognition, Statistical Language and Speech Processing, *SLSP* 2015.
9. E. Loweimi, M. Doulaty, J. Barker, and T. Hain, Emotion recognition from speech signal by effective combination of the generative and discriminative models, *USES Proceedings Vol. 2*, vol. 2, 2015.
10. E. Loweimi, J. Barker, and T. Hain, Compression of model-based group delay function for robust speech recognition, The University of Sheffield Engineering Symposium Conference Proceedings Vol. 1, vol. 1, 2014.
11. E. Loweimi, S.M. Ahadi, and T. Drugman, A new phase-based feature representation for robust speech recognition, *ICASSP*, 2013, May 2013, pp. 7155–7159.
12. E. Loweimi, S.M. Ahadi, T. Drugman, and S. Loveymi, On the importance of pre-emphasis and window shape in phase-based speech recognition, *Lecture Notes in Computer Science*, vol. 7911 LNAI, pp. 160–167, 2013.
13. E. Loweimi, S.M. Ahadi, and H. Sheikhzadeh, Phase-only speech reconstruction using very short frames, *INTERSPEECH* 2011, pp. 2501–2504, ISCA.
14. E. Loweimi and S.M. Ahadi, A new group delay-based feature for robust speech recognition, in *IEEE International conference on Multimedia and Expo (ICME)*, 2011, July 2011, pp. 1–5.
15. E. Loweimi, S.M. Ahadi, and S. Loveymi, On the importance of phase and magnitude spectra in speech enhancement, in *19th Iranian conference on Electrical Engineering (ICEE)*, 2011, May 2011, pp. 1–1.
16. E. Loweimi and S.M. Ahadi, Objective evaluation of phase and magnitude only reconstructed speech: New considerations, *ISSPA*, 2010, May 2010, pp. 117–120.
17. E. Loweimi and S.M. Ahadi, Objective evaluation of magnitude and phase only spectrum-based reconstruction of the speech signal, *ISCCSP*, March 2010.

## AWARDS

- Research Communicator of the Year Award, Engineering Research Symposium, University of Sheffield. 30, June, 2017
- ISCA Student Travel Grant, Interspeech 2017, Stockholm, Sweden. August, 2017
- Faculty PhD Scholarship, Faculty of Engineering, University of Sheffield

## TEACHING EXPERIENCE

### Teaching Assistant

- Guest Lecturer Speech Technology, Spring 2018  
An Introduction to DNNs and their Applications in ASR (two lectures)  
Instructor: Ning Ma, Department of Computer Science, University of Sheffield

- Machine Learning and Adaptive Intelligence Falls 2016–2017  
Instructor: Yoshi Gotoh. Department of Computer Science, University of Sheffield
- Speech Technology Springs 2016-2017  
Instructor: Thomas Hain, Professor  
Department of Computer Science, University of Sheffield
- Speech Processing Falls 2015–2016  
Instructor: Roger K. Moore, Professor  
Department of Computer Science, University of Sheffield
- Data-driven Computing Falls 2014–2015  
Instructor: Jon P. Barker, Professor  
Department of Computer Science, University of Sheffield
- Electronics II Springs 2006–2007  
Instructor: Navid Alaei-Sheini  
Electrical Engineering Department, Shahid Chamran University of Ahvaz

## PRESENTATIONS

### Oral Presentations

- Channel Compensation in the Generalised VTS Approach to Robust ASR
  - UKSpeech, Cambridge, UK. 11, September, 2017
  - Interspeech, Stockholm, Sweden. 23, August, 2017
- Robust ASR Using Generalised Vector Taylor Series
  - Engineering Research Symposium, Sheffield, UK. 30, June, 2017
- Genie in the mike! The Science of Talking (with) Machines
  - A Pint of Science Festival, Sheffield, UK. 15, May, 2017
- Signal Processing is Dead (!) Long Live DNN!
  - Machine Intelligence for Natural Interfaces (MINI) workshop, Sheffield, UK. 12, December, 2016
- Robust Automatic Speech Recognition: A Whirlwind Tour
  - Acoustics Exchange Day, Sheffield, UK. 13, September, 2016
- Deep Learning, The End of History and The Last Computer Scientist
  - Sheffield Robotics Seminar, Sheffield, UK. 5, July, 2016
  - A Pint of Science Festival, Sheffield, UK. 24, May, 2016
- Long-term Statistical Feature Extraction from Speech Signal and its Application in Emotion Recognition
  - Statistical Language and Speech Processing (SLSP), Budapest, Hungary. 25, November, 2015
- Source-filter Separation of Speech Signal in the Phase Domain
  - UKSpeech 2015, Norwich, UK. 3, July, 2015
- On the Importance of Phase Spectrum in Speech Signal Processing
  - SPandH Seminar, Sheffield, UK. 11, November, 2014
- Compression of the Model-based Group Delay Function for Robust Speech Recognition
  - University of Sheffield Engineering Symposium (USES), Sheffield, UK. 24, July, 2014
- Ethics in Data Modelling; Love it or Leave it?

- Research Ethics and Integrity module, Engineering Faculty, University of Sheffield, Sheffield, UK. 4, March, 2014

### Poster Presentations

- Robust Source-filter separation of speech signal in the phase domain
  - Interspeech, Stockholm, Sweden. 21, Aug., 2017
- Source-filter separation of speech signal in the phase domain
  - Interspeech, Dresden, Germany. 6, Sep., 2015
- Speech Emotion Recognition by Efficient Combination of Generative and Discriminative Models
  - Research Retreat, Department of Computer Science, University of Sheffield, Sheffield, UK. 9, Jun., 2015
- A Novel Phase-based Feature Representation for robust speech recognition
  - UKSpeech, Edinburgh, UK. 9, Jun., 2014
- Phase-based Speech Signal Reconstruction
  - Research Retreat, Department of Computer Science, University of Sheffield, Sheffield, UK. 22, May, 2014

### SKILLS

#### Computer

Python, Shell scripting, Kaldi, HTK, Linux/Windows, Office, Latex

#### Language

English: Fluent                      Arabic: Fluent                      Persian: Fluent

### MEMBERSHIPS

IEEE Signal Processing Society Member                      IEEE Student Member  
ISCA Student Member

### OTHER ACTIVITIES

UKSpeech 2016 Co-organiser, Sheffield, UK                      20-21 June 2016  
SPandH Seminar Co-organiser                      Dec 2015-  
Chair of one of the sessions in SLSP 2015, Budapest, Hungary                      24-26 Nov 2015  
Project Facilitator in Transforming Society Summer School, Sheffield, UK                      14-26  
Jun 2015

### REFERENCES

- Thomas Hain  
Professor of Speech and Audio Technology  
Department of Computer Science, University of Sheffield, Sheffield, UK  
E-mail: t.hain@dcs.shef.ac.uk
- Jon Barker  
Professor in Computer Science  
Department of Computer Science, University of Sheffield, Sheffield, UK  
E-mail: j.barker@dcs.shef.ac.uk
- Seyed Mohammad Ahadi  
Professor in Electrical Engineering  
Department of Electrical Engineering  
Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran  
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