

# Daniel Michelsanti

PHD FELLOW · SPEECH PROCESSING AND COMPUTER VISION RESEARCHER

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*Deep learning enthusiast. Dealing with speech processing and computer vision while enjoying hygge in Denmark. Currently working on a project regarding audio-visual speech enhancement.*

## Experience

### Aalborg University (AAU)

RESEARCH ASSISTANT

- Project: Analysis of acoustic signals for industry 4.0 applications.

Aalborg, DENMARK

Sep 2020 - Present

### Universitat Pompeu Fabra (UPF)

VISITING RESEARCHER

- Collaboration with the image processing and the music technology groups.
- Research on deep learning applied to speech reconstruction from silent videos.

Barcelona, SPAIN

Sep 2019 - Dec 2019

### Aalborg University (AAU)

TEACHING ASSISTANT

- Course: Machine learning.

Aalborg, DENMARK

Sep 2018 - Dec 2018

### Aalborg University (AAU)

STUDENT TEACHER

- Organisation of the workshops and the activities for the students interested in learning the Italian language during the SprogCamp 2016 and the SprogCamp 2017 at Hjørring Gymnasium.

Hjørring, DENMARK

Jan 2016 & Jan 2017

### Bang and Olufsen A/S (B&O)

MACHINE LEARNING INTERN

- Design and implementation of a multimodal identification system based on machine learning techniques.

Struer, DENMARK

Sep 2016 - Dec 2016

### Aspasiel

ALGORITHM DEVELOPMENT INTERN

- Implementation of an algorithm for production scheduling to be used at Acciai Speciali Terni, the market leader of flat rolled stainless steel products in Italy.

Terni, ITALY

Oct 2012 - Dec 2012

## Education

### Aalborg University (AAU)

PHD FELLOW

- Project: Deep-learning-based audio-visual speech enhancement.
- Supervisors: Prof. Zheng-Hua Tan and Prof. Jesper Jensen.

Aalborg, DENMARK

Sep 2017 - Aug 2020

### Aalborg University (AAU)

MSC IN VISION, GRAPHICS AND INTERACTIVE SYSTEMS - GPA: 11.5/12

- Thesis Title: Generative adversarial networks for speech processing.
- Supervisor: Prof. Zheng-Hua Tan.

Aalborg, DENMARK

Sep 2015 - Jun 2017

### Università degli Studi di Perugia

BSC IN COMPUTER AND ELECTRONIC ENGINEERING - FINAL GRADE: 110/110 CUM LAUDE

- Thesis Title: Sorting algorithm implementation to optimise the input sequence of the annealing and pickling line at Acciai Speciali Terni.
- Supervisor: Prof. Emilio Di Giacomo.

Perugia, ITALY

Sep 2009 - Feb 2014

### Liceo Classico Jacopone da Todì

LICEO CLASSICO (HIGH SCHOOL EQUIVALENT) - FINAL GRADE: 100/100

- Humanistic studies.

Todi, ITALY

Sep 2004 - Jul 2009

## Publications

Michelsanti, D., Tan, Z.-H., Zhang, S.-X., Xu, Y., Yu, M., Yu, D. and Jensen, J. "An overview of deep-learning-based audio-visual speech enhancement and separation". arXiv preprint arXiv:2008.09586. 2020.

**Michelsanti, D.**, Slizovskaia, O., Haro, G., Gómez, E., Tan, Z.-H. and Jensen, J. “Vocoder-based speech synthesis from silent videos”. Proceedings of Interspeech (to appear). 2020.

**Michelsanti, D.**, Tan, Z.-H., Sigurdsson, S. and Jensen, J. “Deep-learning-based audio-visual speech enhancement in presence of Lombard effect”. Speech Communication, 115, pp.38–50. 2019.

**Michelsanti, D.**, Tan, Z.-H., Sigurdsson, S. and Jensen, J. “Effects of Lombard reflex on the performance of deep-learning-based audio-visual speech enhancement systems”. Proceedings of ICASSP, pp.6615–6619. 2019.

**Michelsanti, D.**, Tan, Z.-H., Sigurdsson, S. and Jensen, J. “On training targets and objective functions for deep-learning-based audio-visual speech enhancement”. Proceedings of ICASSP, pp.8077–8081. 2019.

**Michelsanti, D.**, Tan, Z.-H., Sigurdsson, S. and Jensen, J. “Conditional generative adversarial networks for speech enhancement and noise-robust speaker verification”. Proceedings of INTERSPEECH, pp.2008–2012. 2017.

**Michelsanti, D.**, Ene, A.-D., Guichi, Y., Stef, R., Nasrollahi, K. and Moeslund, T. B. “Fast fingerprint classification with deep neural networks”. Proceedings of VISIGRAPP, pp.202–209. 2017.

Arbués-Sangüesa, A., Ene, A.-D., Jørgensen, N. K., Larsen, C. A., **Michelsanti, D.** and Kraus, M. “Pyramid algorithm framework for real-time image effects in game engines”. Interactivity, Game Creation, Design, Learning, and Innovation, pp.289–296. Springer, Cham. 2016.

## Conferences, Workshops and Summer Schools

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2020	<b>ICASSP</b> , Virtual participation.	<i>Barcelona, SPAIN</i>
2019	<b>DLBCN</b> , Poster presentation.	<i>Barcelona, SPAIN</i>
2019	<b>ICASSP</b> , Poster and oral presentation.	<i>Brighton, U.K.</i>
2019	<b>AML</b> , Poster presentation.	<i>Lausanne, SWITZERLAND</i>
2018	<b>MLSP</b> , Participation.	<i>Aalborg, DENMARK</i>
2018	<b>Summer school on advanced topics in machine learning</b> , Participation.	<i>Copenhagen, DENMARK</i>
2018	<b>ICVSS</b> , 150 selected out of 557. Poster presentation. Winner of the reading group competition.	<i>Punta Sempieri, ITALY</i>
2017	<b>Winter school on signal processing for hearing assistive devices</b> , Participation.	<i>Aalborg, DENMARK</i>
2017	<b>INTERSPEECH</b> , Poster presentation.	<i>Stockholm, SWEDEN</i>
2017	<b>VISIGRAPP</b> , Oral presentation.	<i>Porto, PORTUGAL</i>
2016	<b>SPLINE</b> , Participation.	<i>Aalborg, DENMARK</i>
2016	<b>The Innovation Camp powered by Bang and Olufsen</b> , Participation.	<i>Struer, DENMARK</i>
2016	<b>ArtsIT</b> , Oral presentation.	<i>Esbjerg, DENMARK</i>

## Talks and Lectures

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2019	<b>Audio-visual speech enhancement for hearing assistive devices</b> , Universitat Pompeu Fabra.	<i>Barcelona, SPAIN</i>
2018	<b>Audio-visual speech enhancement for hearing assistive devices</b> , Oticon A/S.	<i>Copenhagen, DENMARK</i>
2018	<b>Audio-visual speech enhancement based on deep fusion</b> , Aalborg University.	<i>Aalborg, DENMARK</i>

## Academic Service

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**Reviewer**, Computer Modeling in Engineering & Sciences, Tech Science Press.

**Reviewer**, Computer Speech & Language, Elsevier.

**Reviewer**, IEEE Access.

**Reviewer**, IEEE/ACM Transactions on Audio, Speech, and Language Processing.

**Reviewer**, IEEE Signal Processing Letters.

**Reviewer**, Neural Networks, Elsevier.

## Additional Information

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<b>Languages</b>	Italian (Native Speaker), English (Full Professional Proficiency), Danish (Elementary Proficiency).
<b>Programming</b>	Python (PyTorch, Tensorflow), MATLAB.
<b>Writing and Presentation</b>	L <sup>A</sup> T <sub>E</sub> X, Word, PowerPoint.
<b>Professional Membership</b>	IEEE - Denmark Section (Student Member). ISCA Speech (Member).
<b>Photo and Video Editing</b>	Affinity Photo, OmniGraffle, iMovie.
<b>Driving License</b>	Danish kørekort (Categories: AM/B/LK/TM).
<b>Hobbies</b>	Photography, cooking, board games.