EMILIE D'OLNE

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Research interests

My current research focuses on the development of speech enhancement algorithms for hearing aids, with a specific focus on people suffering from dementia-induced hearing impairments. I am part of a clinician project in collaboration with University College London looking at hearing in dementia. My role includes the development of listening tests and assistive technologies for patients affected by dementia syndromes. I am interested in exploiting distributed microphone networks and wearable microphones for enhancement and denoising and am working with techniques such as binaural beamforming and polynomial eigenvalue decomposition (PEVD).

Education

PhD – Speech and Audio Processing **2020-PRESENT**

Imperial College London, Communications and Signal Processing Research Group

Interests in binaural beamforming, dereverberation, speech enhancement, wearable microphone arrays, distributed microphone networks, machine learning, deep learning.

MEng – Electrical and Electronics Engineering (First Class Honours) **2016-2020**

Imperial College London, Electrical and Electronics Engineering Department

Final year project: "Automatic detection of Alzheimer's Disease using speech"

Certificat d'Enseignement Secondaire Supérieur (A-levels equiv.) **2010-2016**

Athénée Royal Charles Rogier Liège 1, Liège, Belgium

Projects

Synergising Markers, Tests and Technologies to Enable Real-world Hearing in Alzheimer's and Related dementias (SMarTTER HeAR) **2022-PRESENT**

Discovery Research Grant (RNID and Alzheimer's research UK), University College London

Responsible for the "technology" side and participating in the design of listening tests.

Experience

Vice-Chair, Treasurer **2021-PRESENT**

Imperial College IEEE Student branch

Organisation of technical seminars and workshops, monitoring of the branch's finances.

Postgraduate Student Representative **2021-PRESENT**

Imperial College London, Communications and Signal Processing Research Group

Representing students' interests within the department and at the university.

Teaching Assistant **2019-PRESENT**

Imperial College London, Electrical and Electronics Engineering Department

Teaching, development of materials, assessment, and support.

Research Intern **SUMMER 2019**

Imperial College London, Speech and Audio Processing Laboratory

Gaze-directed beamforming for hearing aids in collaboration with Cardiff University.

Publications

[1] **E. d'Olne**, V. W. Neo, and P. A. Naylor, "Speech Enhancement in Distributed Microphone Arrays Using Polynomial Eigenvalue Decomposition", 2022 [Submitted to *Proc. Eur. Signal Process. Conf. (EUSIPCO)]*

[2] **E. d'Olne**, A. H. Moore, and P. A. Naylor, "Model-based beamforming for wearable microphone arrays", in *Proc. Eur. Signal Process. Conf. (EUSIPCO)*, Dublin, Ireland, 2021.

Awards

Institute of Engineering and Technology (IET) Prize **2020**

Imperial College London, Electrical and Electronics Engineering Department

Dean's List for Academic Excellence **2018,2019,2020**

Imperial College London, Electrical and Electronics Engineering Department

Skills and Languages

Technical skills MATLAB, Python, *TensorFlow, C++, GitHub, Linux, HTML/CSS*

Languages *French (bilingual), Spanish (intermediate), German (intermediate)*