Emilie d'Olne

809, Electrical Engineering, South Kensington, Imperial College London, SW7 2AZ, United Kingdom

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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

Imperial College London   *London, UK*

PhD - Speech and Audio Processing   *2020 - Present*

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

Imperial College London   *London, UK*

MEng - Electrical and Electronic Engineering   *2016 - 2020*

- Graduated with First Class Honours
- Final year project: "Automatic detection of Alzheimer's Disease using speech"

Athénée Royal Charles Rogier Liège 1   *Liège, Belgium*

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

Experience

Nuance Communications   *London, UK*

Research Scientist Intern   *Summer 2022*

- Worked on data augmentation for automatic speech recognition (ASR).

Imperial College IEEE Student Branch   *London, UK*

Vice-Chair, Treasurer   *2021 - Present*

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

Imperial College London, Communications and Signal Processing Research Group   *London, UK*

Postgraduate Student Representative   *2021 - Present*

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

Imperial College London, Electrical and Electronic Engineering Department   *London, UK*

Teaching Assistant   *2019 - Present*

- Teaching, development of materials, assessment, and support.

Imperial College London, Speech and Audio Processing Laboratory   *London, UK*

Research Intern   *Summer 2019*

- 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", in *Proc. Eur. Signal Process. Conf. (EUSIPCO)*, Belgrade, Serbia, 2022.

[2]   **E. d'Olne** , V. W. Neo, and P. A. Naylor, "Frame-based space-time covariance matrix estimation for polynomial eigenvalue decomposition-based speech enhancement", in *Proc. Int. Workshop on Acoust. Signal Enhancement (IWAENC)*, Bamberg, Germany, 2022.

[3]   V. W. Neo, **E. d'Olne** , A. H. Moore, and P. A. Naylor, "Fixed beamformer design using polynomial eigenvalue decomposition", in *Proc. Int. Workshop on Acoust. Signal Enhancement (IWAENC)*, Bamberg, Germany, 2022.

[4]   **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

2020	**Institute of Engineering and Technology (IET) Prize**, Imperial College London, EEE Department	*London, UK*
2018, 2019, 2020	**Dean's List for Academic Excellence**, Imperial College London, EEE Department	*London, UK*

Skills

Technical	MATLAB, Python, Bash, TensorFlow, C++, GitHub, Linux, HTML/CSS
Languages	French (bilingual), Spanish (intermediate), German (intermediate)