

Nikolaos DIONELIS

CONTACT DATA

WEBSITES: ([click here](#)), ([click here](#))
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EDUCATION AND QUALIFICATIONS

- 2015–2019 **Imperial College London, UK:** PhD Degree in Signal Processing
Electrical Engineering, Communications and Signal Processing Group, ([click here](#))
Research Interests: Machine learning; Deep learning; Signal processing; Nonlinear filtering; Audio and acoustics; Speech enhancement, separation, and recognition; Blind dereverberation; Speech diarization; Multimodal audio-visual fusion; Affective computing; Emotion detection
Programming: Python, C++, MATLAB. Coding in Python: PyTorch, TensorFlow, Keras, Spyder IDE, PyCharm IDE. Deep Neural Networks with PyTorch, Keras, and Chainer. GitHub: ([click here](#))
PhD Thesis: “Modulation-domain Kalman filtering for single-channel speech enhancement, denoising, and dereverberation”. Supervisors: Mike Brookes and Prof. Patrick A. Naylor
Engineering and Physical Sciences Research Council (EPSRC) Doctoral Training Award
PhD Degree: ([click here](#)). PhD Courses: Statistical Machine Learning, Convex Optimization
- 2011–2015 **Imperial College London, UK:** MEng Degree in Electrical and Electronic Engineering
ECTS Credits: 261. Overall Grade: First Class Honours, 1st (72.81%)
Fourth Year: Total Grade: 1st (75.50%). Third Year: Total Grade: 1st (75.49%)
MEng Degree Courses: Machine Learning for Computer Vision (84%); Mathematics for Signals and Systems (82%); Digital Signal Processing (85%); Spectral Estimation and Adaptive Signal Processing (71%); Wavelets and Applications (76%); Advanced Signal Processing (73%)
Transcript of MEng Degree in Electrical and Electronic Engineering: ([click here](#))
Coursework for (1) Machine Learning, (2) Optimization, and (3) Wavelets: ([click here](#))
Third Year Group Project, Floating-Point Unit (FPU) Design: ([click here](#)) and ([click here](#))
Courses: ([click here](#)). Fourth Year Dissertation Project on Signal Processing: ([click here](#))
- 2000–2011 **Hellenic American Educational Foundation (HAEF) Athens College - Psychico College**
2009-2011, International Baccalaureate (IB), Grade: 40/45; A-level Mathematics (A); IELTS (7.5)

PUBLICATIONS

- 2020 **N. Dionelis**, M. Yaghoobi, and S. A. Tsaftaris, “Boundary of Distribution Support Generator (BDSG): Sample Generation on the Boundary,” Paper Submitted for Publication. Online: ([click here](#))
- 2019 **N. Dionelis**, “Literature Review of Methods for Anomaly Detection,” Technical Report on Generative Models and Generative Adversarial Networks (GANs), University of Edinburgh, UK.
- 2019 **N. Dionelis**, “Modulation-Domain Kalman Filtering for Single-Channel Speech Enhancement, Denoising and Dereverberation,” PhD Thesis, Imperial College London. Online: ([click here](#))
- 2019 **N. Dionelis** and M. Brookes, “Modulation-Domain Kalman Filtering for Speech Dereverberation and Denoising,” IEEE Transactions on Audio, Speech, and Language Processing, Volume 27, Issue 4, April 2019. Online: ([click here](#))
- 2018 **N. Dionelis** and M. Brookes, “Phase-Sensitive Single-Channel Speech Enhancement with Modulation-Domain Kalman Filtering,” IEEE Transactions on Audio, Speech, and Language Processing, Volume 26, Issue 5, May 2018. Online: ([click here](#))
- 2018 **N. Dionelis** and M. Brookes, “Speech Enhancement in the Bark Power Spectral Domain,” in Proceedings European Signal Processing Conference (EUSIPCO), Rome. Online: ([click here](#))
- 2018 **N. Dionelis**, “Single-Channel Speech Enhancement Using Nonlinear Modulation-Domain

PUBLICATIONS (CONTINUED)

- Kalman Filtering,” arXiv preprint, arXiv:1811.00078. Online: ([click here](#))
- 2017 **N. Dionelis** and M. Brookes, “Modulation-Domain Speech Enhancement Using a Kalman Filter with a Bayesian Update in the Log Spectral Domain,” in Proceedings Hands-Free Speech Communication and Microphone Arrays Workshop, San Francisco. Online: ([click here](#))
- 2017 **N. Dionelis** and M. Brookes, “Speech Enhancement Using Modulation-Domain Kalman Filtering with Speech Level Normalized Priors,” in Proceedings EUSIPCO, Kos. Online: ([click here](#))
- 2016 **N. Dionelis** and M. Brookes, “Speech Level Estimation in Noisy Signals with Quadrature Noise Suppression,” in Proceedings EUSIPCO, Budapest. Online: ([click here](#))
- Reviewer: IEEE Transactions, 6 times; Speech Communication, EURASIP Journal, 2 times
- Attendance: Sensor Signal Processing for Defence (SSPD) 2019; InterSpeech 2017, ([click here](#)); 24th International Congress on Sound and Vibration (ICSV24); 60th Audio Engineering Society (AES)

WORK EXPERIENCE

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|--------------|--|
| 2019 – TODAY | UNIVERSITY DEFENCE RESEARCH COLLABORATION (UDRC), UK
UDRC in Signal Processing: (click here), University of Edinburgh
Postdoctoral Research: Research Associate (RA) in Machine Learning
Robust Generative Neural Networks: Generative Adversarial Networks (GANs), Variational Autoencoders (VAEs), GAN-VAEs for anomaly detection. Developing machine learning models and a Python-based data analysis framework. Analyzing large datasets. Performing statistical analysis, e.g. hypothesis testing. |
| 2015 – 2019 | IMPERIAL COLLEGE LONDON, UK
Graduate Teaching Assistant, MEng Degree Courses, Electrical Engineering |
| 2014 | TOUMAZ SENSIMUM HEALTHCARE, UK
Signal Processing and Biomedical Engineering Project. Report: (click here)
Statistical analysis of the electrocardiogram (ECG) and photoplethysmography (PPG) signals. Supervisor: Dr Ed Ang, (click here). Duration: 2 months |
| 2014 | NATIONAL TECHNICAL UNIVERSITY OF ATHENS, Greece
Department of Transportation Planning and Engineering: Responsible for collecting data/metadata regarding the Transport System. Duration: 3 weeks |
| 2014 | HELLENIC CIVIL AVIATION AUTHORITY, Athens, Greece
Familiarized with the air navigation and air traffic control systems of the civil aviation and the Greek Flight Information Region (FIR). Duration: 6 weeks |
| 2014 | TRANSMART CONSULTING, Athens, Greece
Participated in the preparatory work for three business project proposals for shipping, (civil) transportation, and airplane companies. Duration: 6 weeks |
| 2014 | POSTSCRIPTUM MEDIA DESIGN, Athens, Greece
Responsible for the design and maintenance of websites that aim to promote popular tourist destinations, attractions, and museums. Duration: 6 weeks |

INTERESTS AND RESPONSIBILITIES

2016, Imperial College London, Imperial - MIT Global Fellows Programme: ([click here](#))

2014, Imperial College Business School, Summer Courses: Finance (71 %), ([click here](#)); Business Strategy and Consulting. Intensive Programme: 6-weeks. ECTS Credits: 14

Google Scholar: ([click here](#)). MacBooks: 8-Core 2.3GHz, 4-Core 2.9GHz. UK Perm Residence