# Dr MARIA LIVADA

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## Lecturer

Applied Mathematician / Systems & Control Engineer, holding a Ph.D. in Control Theory (City, University of London) on the multi-disciplinary topic of Modeling of Engineering Systems applied on electrical networks, an MSc on System & Control Engineering (City, University of London), and a 5-yr Applied Mathematical & Physical Sciences Diploma (National Technical University of Athens, Greece).

# Career Experience

**Lecturer at City, University of London, London**                   January 2022 — Present

Lecturer in Mechatronics (Education) in the Department of Engineering, SST, City, University of London.

**Visiting Lecturer at School of Mathematics, Computer Science and Engineering, City, University of London, London**                   September 2017 — December 2021

Visiting Lecturer in the Department of Engineering, SMCSE, City, University of London. My teaching duties involve designing, delivering lectures and problem-solving classes to undergraduate and postgraduate engineering students, supervision of students projects, and pastoral support. Furthermore, this academic year I am leading and coordinating a cross-departmental Mathematics Support Course for Stage 1 students which aim to support students in mathematics during their transition to university.

**Visiting Lecturer at ECE (Omnes Education), London**                   September 2019 — December 2021

I am responsible for the design and delivery of lectures to Year 3 Engineering students. The modules I am currently teaching are Mathematical Operational Research and Statistics & Probability. Other responsibilities involve assessing students' work, providing pastoral support, preparing final exams, and also supervising final year projects.

**Adjunct Lecturer at University of West Attica, Athens**                   February 2021 — September 2021

Teaching Fellow grant funded by NSRF for the academic year 2020-2021. I have been appointed as the Module Leader and Lecturer of 2 modules in the Department of Informatics and Computer Engineering. My main responsibilities involved the design and delivery of lectures, seminars, and labs to MEng students. The modules I taught were Introduction to Control Theory and Digital Control.

**Post-Doctoral Research Associate at Division of Mathematics and Informatics, School of Economics and Political Sciences, National and Kapodistrian University of Athens, Athens**                   September 2018 — September 2021

Post-Doctoral Research Associate in the Department of Economics, School of Economics & Political Sciences. My research interests center around the modeling of networks and financial contagion elimination. My research mainly focused on the mathematical modeling of large-scale interconnected bank networks that may be considered as dynamical systems, applying several computational

methods and techniques based on dynamical system theory and control.

**Associate Lecturer at Institute of Management Studies**      January 2020 — April 2021
**Goldsmiths, University of London, London**

As an Associate Lecturer at the Institute of Management Studies, I had been delivering lectures and seminars to Year 2 students in Further Mathematics for Economics.

**Visiting Lecturer at Ecole d'Ingénieurs ECE Paris, Paris**      September 2020 — December 2020

As a module leader, I delivered online lectures and seminars to Year 3 engineering students in Fourier Analysis. I had been also responsible for the organization and planning of the course.

**Research Fellow at City, University of London, Systems & Control**      September 2017 — September 2020
**Research Centre, London**

Post-Doctoral Research Fellow at Systems and Control Research Center, City, University of London. My research activities included conducting high-level research in the areas of network theory, modelling of complex systems, control theory, and complex networks.

**Visiting Lecturer at Nanjing University of Aeronautics and**      June 2020 — July 2020
**Astronautics, Nanjing**

As part of a collaboration between SMCSE and NUAA I delivered a summer course in Mechatronics for Year 2 Engineering students.

**Teaching Assistant - Early Stage Researcher at City, University of**      September 2012 — September 2017
**London, London**

- During my PhD years, as a Teaching Assistant, I have contributed in planning and delivery of a wide range of modules in the Department of Engineering both at undergraduate and postgraduate level.
- During my PhD years, as an Early Stage Researcher, I have participated in a number of EU / H2020 projects within the School, namely: SMILE & FORTIKA, Speech Xrays EU Project, GLOW (Marie Curie Partnership), where for the latter I was seconded for a couple of months to Israel and Greece.

# Education

**PhD Control Theory, November 2012 — June 2017**
SMCSE, City, Univrsity of London, London

**MSc Systems & Control Engineering, September 2011 — September 2012**
SMCSE, City, Univrsity of London

**MEng Applied Mathematic & Physical Sciences, September 2004 — June 2011**
National Technical University of Athens, Athens, Greece

# Areas of Expertise

- Teamwork
- Effective Time Management
- Java Programming
- Mathematica
- Ability to Work in a Team
- C++ Programming
- Python

- Communication Skills
- Fast Learner
- Knowledge of MS Office
- Complex Problem Solving
- Hard Working
- Microsoft Office

- Computer Skills
- Matlab
- Mathematical Skills
- Effective Teaching
- LaTeX
- Autodesk AutoCAD

# Publications

### Research Publications

1. Maria Livada, Evangelos Melas, Nick Poulios (2024) Demand aggregation and mid-term energy planning problem on the business layer. Optimization, Discrete Mathematics and Applications to Data Sciences, Springer (accepted)
2. Maria Livada, Costas Poulios, Evangelos Melas and John Leventides (2024) Non-local approximation of nonlinear systems arising from ODEs via EDMD methods. Journal of Computational Dynamics (under review)
3. Costas Poulios, Evangelos Melas, Nick Poulios, Maria Livada, John Leventides (2024) A mathematical study of the Braess's Paradox within a network comprising four nodes, five edges, and linear time functions. Optimization, Discrete Mathematics and Applications to Data Sciences, Springer (under review)
4. Nick Poulios, Evangelos Melas, Maria Livada (2024) The minimum cost energy flow problem under demand uncertainty. Effect on optimal solution, variability, worst and best case scenarios. Optimization, Discrete Mathematics and Applications to Data Sciences, Springer (under review)
5. Sandra Piernikowska, Maria Tomas-Rodriguez, Maria Livada (2024) Incorporation of a Passive Inerter-Based Network in Self-Induced Oscillations Damping in a Barge-Type Floating Offshore Wind Turbine. IEEE Oceanic Engineering (under review)
6. John Leventides, Costas Poulios, Maria Livada, Ioannis Giannikos (2023) Re-engineering of interbank networks. Network Science, 12(1), pp. 41-64. doi: 10.1017/nws.2023.21
7. Livada, M., Chrysanthopoulos, N., & Morar, N. I. (2023). Sustainability Engineering Education – An Outlook On UK Higher Education Providers. European Society for Engineering Education (SEFI). DOI: 10.21427/TD5Q-8X74
8. Maria Livada, John Leventides (2022) The McMillan Degree of Implicit Network Descriptions. IMA Journal of Mathematical Control and Information Volume 39, Issue 2, June 2022, Pages 564–589, https://doi.org/10.1093/imamci/dnac012
9. J. Leventides, N. Karcanias and M. Livada (2021) Partially Fixed Structure Determinantal Assignment Problems. IEEE Transactions on Automatic Control, vol. 66, no. 6, pp. 2883-2888. IEEE.
10. John Leventides, Costas Poulios, Alkis Tsiatsios, Maria Livada, Stavros Tsipras, Kostas Lefcaditis, Panagiota Sargenti, Aleka Sargenti (2020) Systems theory and analysis of the implementation of non-pharmaceutical policies for the mitigation of the COVID-19 pandemic. Journal of Dynamics and Games, American Institute of Mathematical Sciences.
11. J. Leventides, H. Kollias, E. Camouzis and M. Livada (2020) Grassmann Inequalities and Extremal Varieties. Journal of Optimization Theory and Applications, Springer.
12. John Leventides, Maria Livada, Costas Poulios (2020) The dynamics of interbank networks. Discrete Mathematics and Applications, Springer.
13. Karcanias N., Livada M. (2020) Complex Systems and Control: The Paradigms of Structure Evolving Systems and System of Systems. In: Zattoni E., Perdon A., Conte G. (eds) Structural Methods in the Study of Complex Systems. Lecture Notes in

Control and Information Sciences, vol 482. Springer.

14.    Berger, T., Karcanias, N. and Livada, M. The Pseudo-McMillan Degree of Implicit Transfer Functions of RLC Networks. M Circuits Syst Signal Process (2019) 38: 967.

15.    Karcanias, N., Livada, M. and Leventides, J. (2017). System Properties of Implicit Passive Electrical Networks Descriptions. IFAC-PapersOnLine, 50(1), pp. 9242-9247.

16.    Leventides, J., Livada, M. and Karcanias, N. (2016). Zero Assignment Problem in RLC Networks. IFAC PapersOnLine, 49(9), pp. 92-98.

17.    Karcanias, N., Leventides, J. and Livada, M. (2014). Multi-parameter structural transformations of passive electrical networks and natural frequency assignment. 22nd Mediterranean Conference of Control and Automation (MED). (pp. 984-989). IEEE.

18.    Leventides, J., Livada, M., and Karcanias, N. (2014). Mcmillan Degree of Impedance, Admittance Functions of RLC Networks. In MTNS 2014 Proceedings.

19.    N. Karcanias, J. Leventides and M. Livada (2014). Matrix pencil representation of structural transformations of passive electrical networks. 6th International Symposium on Communications, Control and Signal Processing (ISCCSP), Athens, 2014, pp. 416-420.

Research Interests

My research interests lie mainly in the following research areas: Network theory, modeling of complex systems, control theory, complex networks, mathematical economics, general modeling, financial modeling and dynamical systems theory.

# Professional Memberships

Member of IEEE

Member of IET

Member of Technical Chamber of Greece

Fellow of AdvanceHE