

PERSONAL INFORMATION

Date of Birth 14th April 1980
Nationality Hellenic
Marital Status Married



Expert in optimisation, game theory, artificial intelligence and their application in the energy sector. Professional and academic experience in the intersection of Computer Science, Operations Research and Economics. Keen on the complex current and future problems that can be solved by embedding data into the decision making process in support of planning and operation.

EMPLOYMENT

Technical University of Denmark (DTU), Dept. of Technology, Management and Economics

Nov 2017 -

Research Scientist, Energy Economics and Regulation, Sustainability Division

Manager: Dr. Klaus Skytte

- Game-theoretic analysis of transmission expansion in the North Sea and the Baltic region.
- Data-driven modelling and simulation of energy systems based on equilibrium programming, stochastic optimisation and mechanism design.
- Design of distributed risk sensitive markets for consumer-centric peer-to-peer power systems.
- Teaching, PhD and MSc student mentoring and supervision.

Technical University of Denmark (DTU), Dept. of Electrical Engineering

Oct 2013 - Nov 2017

Post-doctoral researcher in Energy Analytics and Markets group, CEE

Manager: Professor Pierre Pinson

- Research in efficient market designs for power systems with high shares of renewable sources of energy based on generation forecasts. Forecasting and verification.
- Trading strategies combining financial instruments and the wholesale market.
- Modelling of power systems with Python, Gurobi and R.
- Teaching, PhD mentoring and MSc level student supervision.

University of Copenhagen (KU), Dept. of Food and Resource Economics

Jan 2013 – Apr 2013

Visiting researcher

- Design of multi-attribute auctions focusing on buyers with limited access to own preferences.
- Development of a simulation framework for the evaluation of multi-attribute auctions.

Copenhagen Business School (CBS), Dept. of Economics

Oct 2010 – Dec 2012

Post-doctoral researcher

Manager: Professor Peter Bogetoft

- Research in optimal auction design and efficient procurement under uncertainty.
- AI based assessment and evaluation in project procurement designing auctions incorporating benchmarking methods e.g. Data Envelopment Analysis (DEA).
- Development of a simulation framework for the evaluation of DEA based auctions.

British Telecom Research UK

May 2006 – Aug 2006

Industrial placement in the Complexity Group

- Game-theoretic applications in multi-agent systems.
- Stochastic adaptive learning in minority games (e.g. The El Farol Bar Problem).

EDUCATION

PhD	University of Southampton, UK, School of Electronics and Computer Science Doctor of Philosophy in Computer Science <i>Mechanism Design for Eliciting Costly Observations in Next Generation Citizen Sensor Networks.</i>	Oct 2006 – May 2010
MSc	The University of York, UK, Mathematics Department MSc (with Honours) in Mathematics with Modern Applications. <i>The El Farol Bar problem for next generation (wireless) systems.</i>	Oct 2005 – Sep 2006
BSc	Aristotle University of Thessaloniki, Greece, Department of Mathematics BSc in Mathematics, Subject Area: Applied Mathematics	Oct 1998 – April 2005

TRAINING

Technical University of Denmark	Education in University Teaching at DTU – full course in pedagogical training Programme for PhD supervisors (10 days training)	Oct 2015 – Jan 2015 May 2015
Lund University, Dept. of Economics, Sweden	The Arne Ryde Memorial Lectures 2011: Dynamic Pricing: A Mechanism Design Approach.	21 – 23 Sep 2011
University College London, Centre of Economic Learning and Social Evolution, UK	Workshop in Search, Mechanism Design and the Internet.	12 – 13 Jun 2009
University of Patras, Dept. of Mathematics, Greece	Conference and Summer school in Nonlinear Dynamics: Chaos and Complexity.	Aug 2002

COMPUTER SKILLS

Programming: Python, Gurobi, R, Matlab, C, Fortran, Pascal
Applications: Maple, Mathematica, LaTeX, SPSS, Linux computing

LANGUAGES

Greek: Native Language **German:** Good (B2)
English: Professional capacity **Danish:** Beginner (module 3)

SCHOLARSHIPS

EPSRC PhD Student Scholarship Research undertaken as part of the EPSRC funded project “Market-Based Control” (Grant : GR/T10664/01). Application of market-based paradigms to the design, control and evolution of complex distributed computational systems. It was a collaborative project involving the Universities of Birmingham, Liverpool and Southampton and BAE Systems, BT and HP.

Active grant: Flexibility for Smart Urban Energy Systems (FlexSUS)

Apr 2019 -

Role: Research proposal lead, project manager

FlexSUS has been successfully granted for a total budget of 1.65 mil EUR for a duration of 3 years. FlexSUS will gear municipalities towards reaching their sustainability goals and EU's desire for Positive Energy Districts through a decision support platform that represents the local energy systems within the city's urban infrastructures integrating operational and planning aspects. FlexSUS involves Chalmers University of Technology (SE), Linkoping University (SE), Erasmus University (N) and the Danish municipalities of Lyngby-Taarbaek and Holbaek.

Application: European Commission, Energy Efficiency (Call H2020-EE-2015-2-RIA)

Jun 2015

Role: Proposal coordinator for DTU CEE

DTU's Centre of Electric Power and Energy (CEE) participated in this consortium with several renowned universities incl. INESC Porto, Cambridge University, University of Edinburgh, AALTO and several industrial partners. The aim of the project was to develop and demonstrate a modular and adaptive solution for demand response at the level of blocks of buildings.

Application: European Commission (Marie Skłodowska-Curie Innovative Training Networks)

Jan 2016

Role: DTU CEE ELMA PhD designer and course coordinator

DTU's CEE proposed a European Training Network focusing in (i) investment under uncertainty, (ii) operations in power markets with large renewable shares, (iii) energy systems and energy carrier interfaces, and (iv) market design and regulation. The proposed network "Advanced analytical training in future sustainable electric power and energy systems (A-TRAINS)" aimed to advance research, and education of new researchers while preparing them for future jobs as researchers, regulators, policy makers, network operators, or managers in the industry.

Application: "Danmarks Innovations Fond" (Instrument: Grand Solutions)

May 2016

Role: Project proposal coordinator and work package leader

The project "The Energy Collective - Developing the basis platform for a future with collaborative energy! (c-Energy)" proposed the foundations of a future collaborative energy economy and aimed to appraise the implications for the market participants and the society as a whole, through an experiment accounting for the market, ICT and power grid interactions.

Application: EUDP – Danish Energy Agency

Nov 2017 – Jan 2018

Role: Project proposal coordinator and work package leader

The proposed project, titled "D-Flex: Unlocking the value of decentralised flexibility across multiple energy systems", aimed to exploit the synergies between energy sectors (electricity, heat, storage). The project of total budget of 2 mil EUR was designed as a collaboration between DTU departments of Management Engineering and Electrical Engineering and several industrial partners.

TEACHING, MENTORING AND SUPERVISION

MSc course: Energy Economics (42003)

Fall semester 2019

Role: Lecturer and course co-organizer (full semester course ~ 10 ECTS)

Course design, objectives, exams and coordination of Teaching Assistants

Mar 2019 –

EES-UETP / DTU CEE Summer School, Denmark Jun 2018, Jun 207, Jun 2016
Applications of distributed optimization, data-driven methods, stochastic, robust and convex optimization in power systems
Role: Organiser, Tutor and Guest Lecturer “*Game Theory in Electricity Markets*”

MSc course: Game Theory in Electricity Markets, DTU Fall semester 2016
Role: Lecturer and course organizer (full semester course ~ 5 ECTS)
Evaluated as part of “Education in University Teaching at DTU”: 4.49/5 on Good Teaching scale

EES-UETP / INESC TEC Summer School, Porto, Portugal Jul 2016
Risk Management in Power Systems: From Theory to Practice
Role: Guest Lecture “*Future Electricity Markets*”

Guest lecturer in MSc courses 2015 -
Themes: impact of renewables in electricity markets, stochastic optimisation demand response, consumer based energy sector

Co-supervision of PhD student Fabio Moret Feb 2017 –
Topic: Market design and operations for Energy Collectives (co-supervision with Prof. Pierre Pinson)

Mentoring of PhD students and junior academics 2015 –

Supervision of more than 15 MSc students 2014 –

COMMUNITY SERVICE

Hellenic Army, Signal Corps Nov 2003 – Nov 2004
Obligatory military service, Prvt, Systems Administrator

PEER REVIEWED ACADEMIC PUBLICATIONS

Chapters in Books

[B1] A. Papakonstantinou, P. Bogetoft, Incentives in Multi-dimensional Auctions under Information Asymmetry for Costs and Qualities. In *LNBIP: Agent-Mediated Electronic Commerce. Designing Trading Strategies and Mechanisms for Electronic Markets*. Eds: E. David et al., LNBIP 136 AMEC/TADA 2012, Springer, Heidelberg, 2013. [PDF](#)

[B2] A. Papakonstantinou, A Rogers, E. H. Gerding, and N. R. Jennings, Mechanism design for eliciting probabilistic estimates from multiple suppliers with unknown costs and limited precision. In *LNBIP: Agent-Mediated Electronic Commerce. Designing Trading Strategies and Mechanisms for Electronic Markets*. Eds: E. David et al., AMEC/TADA 2009, LNBIP 59, pp. 102-116. Springer, Heidelberg, 2010. [PDF](#)

International Journal Papers

[J1] A. Papakonstantinou, G. Champeri, S. Delikaraoglou and P. Pinson, Trading wind power through physically settled options and short-term electricity markets. *Wind Energy (in production DOI: 10.1002/we.2383)*, 2019.

- [J2] L. Exizidis, J. Kazempour, A. Papakonstantinou, P. Pinson, Z. De Grève and F. Vallée, Incentive-Compatibility in a Two-Stage Stochastic Electricity Market with High Wind Power Penetration. *IEEE Transactions on Power Systems*, 34, (4), 2019. [PDF](#)
- [J3] A. Papakonstantinou, P. Bogetoft, Multi-dimensional Procurement Auction under Uncertain and Asymmetric Information. *European Journal of Operational Research*, 258, (3), pp. 1171-1180, 2017. [PDF](#)
- [J4] A. Papakonstantinou, P. Pinson, Information Uncertainty in Electricity Markets: Introducing Probabilistic Offers. *IEEE Transactions on Power Systems*, 31, (6), pp. 5202-5203, 2016. [PDF](#)
- [J5] J. L. Hougaard, K. Nielsen and A. Papakonstantinou, A Sealed-bid two-attribute Yardstick Auction without prior Scoring. *Group Decision and Negotiation*, 25, (4), pp. 827-843, 2016. [PDF](#)
- [J6] A. Papakonstantinou, P. Bogetoft, Short Communication: DEA based auctions. *European Journal of Operational Research*, 231, (2), pp 507-511, 2013. [PDF](#)
- [J7] A. Papakonstantinou, A. Rogers, E. H. Gerding, and N. R. Jennings, Mechanism Design for the Truthful Elicitation of Costly Probabilistic Estimates in Distributed Information Systems. *Artificial Intelligence*, 175, (2), pp. 648-672, 2011. [PDF](#)

Refereed Conference Full Papers

- [C1] J. Gea-Bermudez, L.-L. Pade, A. Papakonstantinou and M. J. Koivisto, North Sea Offshore Grid-Effects of Integration Towards 2050. *In Proceedings of 15th IEEE International Conference on the European Energy Market 2018*, 2018. [PDF](#)
- [C2] A. Papakonstantinou, P. Pinson, Population Dynamics for Renewables in Electricity Markets: A Minority Game View, *In Proceedings of 2016 International Conference on Probabilistic Methods Applied to Power Systems (PMAPS)*, 2016. [PDF](#)
- [C3] W. A. Bukhsh, A. Papakonstantinou and P. Pinson, A Robust Optimization Approach using CVaR for Unit Commitment in a Market with Probabilistic Offers, *In Proceedings of 2016 IEEE International Energy Conference*, 2016. [PDF](#)
- [C4] S. Delikaraoglou, A. Papakonstantinou, C. Ordoudis and P. Pinson, Price-Maker Wind Power Producer Participating in a Joint Day-Ahead and Real-Time Market. *In Proceedings of 12th IEEE International Conference on the European Energy Market 2015, DOI*, 2015. [PDF](#)
- [C5] A. Papakonstantinou, P. Pinson, Towards electricity markets accommodating uncertain offers. *In Proceedings of 13th International Workshop on Large-Scale Integration of Wind Power into Power Systems as well as on Transmission Networks for Offshore Wind Plants, IEEE Press*, 2014. [PDF](#)
- [C6] A. Papakonstantinou, A Rogers, E. H. Gerding, and N. R. Jennings, A truthful two-stage mechanism for eliciting probabilistic estimates with unknown costs. *In Proceedings of 18th European Conference on Artificial Intelligence (ECAI 2008)*, pp. 448-452, 2008. [PDF](#)

Preprints and under review papers

- [P1]** P. Pinson, F. Moret, T. Baroche, A. Papakonstantinou, Negotiation processes for sharing systems – From pool-based to peer-to-peer. *In Control and Optimization for the Sharing Economy*, Springer, in production, 2019.
- [P2]** A. Papakonstantinou, C. Bergaentzle, L.-L. Pade, Regional coordination in grid expansion with offshore wind: the case of the Baltic Sea Region. *Submitted in 16th IEEE International Conference on the European Energy Market*, 2019.
- [P3]** D. Thomas, J. Kazempour, A. Papakonstantinou, P. Pinson, O. Deblecker and C. Ioakeimidis, A Local Market Mechanism for Physical Storage Rights. *Submitted in IEEE Transactions on Power Systems*, 2019.