

DR. ATHANASIOS PAPAKONSTANTINOU

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Researcher and educator fascinated by the transition to a transparent and sustainable power system, signalled by the massive deployment of renewables and the rise of proactive energy consumers. With a track record of research in the intersection of Economics, Optimisation and Power Systems I am uniquely equipped to address such complex challenges. Utilising strong analytical skills and open to new ideas, I have pursued research in energy (e.g. electricity markets, demand response and smart-grids), often deriving inspiration from my background in complex systems and intelligent sensor networks, while demonstrating a strong commitment in educating young professionals as they start their career trajectories.

PERSONAL INFORMATION

Date of Birth 14th April 1980
Nationality Hellenic

Marital Status Married
Father of a baby daughter

EMPLOYMENT

Technical University of Denmark (DTU), Dept. of Electrical Engineering
Post-doctoral researcher in Energy Analytics and Markets group, CEE
Manager: Professor Pierre Pinson

Oct 2013 - Present
supported by [5s/FEMs](#)

- Design of market mechanisms and trading strategies for power systems with high shares of renewable sources of energy.
- Studies based on equilibrium programming, multi-stage stochastic optimisation and bi-level formulation.
- Modelling of power systems with Python/Gurobi and R.
- Teaching and MSc level student supervision.

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

Jan 2013 – Apr 2013

- 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
Post-doctoral researcher
Manager: Professor Peter Bogetoft

Oct 2010 – Dec 2012
supported by [CFEM](#)

- Design of multi-dimensional auctions focusing on uncertainty on both costs and production.
- 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
Industrial placement in the Complexity Group
Supervisor: Dr. Maziar Nekovee

May 2006 – Aug 2006

- 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, Oct 2006 – May 2010
School of Electronics and Computer Science
Doctor of Philosophy in Computer Science
Supervisors: Professors Nicholas Jennings and Alex Rogers
- MSc** The University of York, UK, Oct 2005 – Sep 2006
Mathematics Department
MSc (with Honours) in Mathematics with Modern Applications.
- BSc** Aristotle University of Thessaloniki, Greece, Oct 1998 – April 2005
Department of Mathematics
BSc in Mathematics, Subject Area: Applied Mathematics

TRAINING

- Technical University of Denmark** Oct 2014 – Apr 2017
Education in University Teaching at DTU “Uddannelse I Didaktik og Metodik”:
- Module 1: Teaching and Learning 2.5 ECTS – 50 hrs
 - Module 2: Teaching Methods and Course Planning 2 ECTS – 40 hrs
 - Module 3: Teaching and Teacher Development 2 ECTS – 40 hrs
 - Module 4: Teaching Development Project (for the course “Game Theory in Electricity Markets”) 5 ECTS – 100 hrs
- Programme for PhD supervisors:
- Supervision of PhD students at DTU 1 day course
 - The PhD Supervision Process: Methods and Tools 3 day course
- Lund University, Dept. of Economics, Sweden** 21 – 23 Sep 2011
The Arne Ryde Memorial Lectures 2011: Dynamic Pricing: A Mechanism Design Approach.
- University College London, Centre of Economic Learning and Social Evolution, UK** 12 – 13 Jun 2009
Workshop in Search, Mechanism Design and the Internet.
- University of Patras, Dept. of Mathematics, Greece** Aug 2002
Conference and Summer school in Nonlinear Dynamics: Chaos and Complexity.

SKILLS

Languages

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

Computer Skills

- Programming:** Python/Gurobi (optimisation software), R, Matlab, C, Fortran, Pascal
Applications: Maple, Mathematica, LaTeX, SPSS, Linux computing

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.

TEACHING EXPERIENCE

EES-UETP / DTU CEE Summer School, Denmark Jun 2017

Modern Challenges in Power System Operation and Electricity Market: An Optimization Perspective

Role: Organiser and Guest Lecturer *“Game Theory in Electricity Markets”*

MSc course: Game Theory in Electricity Markets, DTU Fall semester 2016

Role: Lecturer and course organizer

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”*

EES-UETP / DTU CEE Summer School, Denmark Jul 2016

Uncertainty in Electricity Markets and System Operation

Role: Organiser

MSc course: Advanced topics on electricity markets and power systems, DTU Nov 2015

Role: Guest Lecture *“Demand Flexibility and Demand Response in Electricity Markets”*

MSc course: Integration of wind power in the power system, DTU Nov 2015

Role: Guest Lecture *“Fundamentals of Electricity Markets”*

Responsible for a student debate: *“Increased wind power stakes lead towards cheaper electricity?”*

BSc / MSc course: Electric Power Technology - economy, politics and technology, DTU Jan 2015

Role: Guest Lecture *“Overview of Electricity Markets”*

MSc course: Integration of wind power in the power system, DTU Nov 2014

Role: Guest Lecture *“Fundamentals of Electricity Markets: The day-ahead market”*

Responsible for a live electricity auction and the discussion following the students’ bidding strategies

SUPERVISION AND MENTORING

MSc student Pernille Yde Hansen Dec 2016 – present

Thesis: *“Co-optimization of energy and reserve markets”*

MSc student Christian Tarning-Andersen Dec 2016 – present

Thesis: *“Evaluation of capacity market benefits in the US offshore wind market”*

MSc student Mirrin Snel Thesis: <i>“Bidding strategy of a Virtual Power Plant”</i>	Dec 2016 – Jul 2017
MSc student Vladimir Dvorkin Special project in Electricity Markets: <i>“Spiteful bidding and malicious strategies in day-ahead markets”</i>	Dec 2016 – Apr 2017
MSc student Georgia Champeri, DTU Electrical Engineering Thesis: <i>“Trading strategy of a wind power producer in both futures and day-ahead markets”</i>	Dec 2015 – Jul 2016
MSc student Sigurd Pedersen, DTU Electrical Engineering Thesis: <i>“Trading Strategies for Wind Power Producers in the British Intraday Market”</i>	Dec 2014 – Jul 2015
Energy Analytics and Markets group PhD student mentoring PhD students Stefanos Delikaraoglou, Christos Ordoudis, Tue V. Jensen	Oct 2014 – present

INVITED TALKS

A. Papakonstantinou, P. Pinson: Information Uncertainty in Electricity Markets - Introducing Probabilistic Offers, Tsinghua – DTU Joint Seminar on Renewable Energy, <i>Tsinghua University, Beijing, China</i>	Oct 2016
A. Papakonstantinou, P. Pinson: British Wind and Irish Music – Population Dynamics in Electricity Markets, MINES ParisTech/ARMINES – DTU Scientific Exchange Workshop, <i>Centre PERSEE, Sophia Antipolis, France</i>	Oct 2016
A. Papakonstantinou, P. Pinson: From Responsibility to accountability- Electricity market mechanisms accommodating probabilistic offers, <i>EURO 2015, Glasgow, UK</i>	Jul 2015
A. Papakonstantinou: Mechanism Design for Eliciting Costly Observations in Next Generation Citizen Sensor Networks, <i>Department of Economics, Copenhagen Business School, Frederiksberg, Denmark</i>	Aug 2010
A. Papakonstantinou: Mechanism Design for Eliciting Costly Observations in Next Generation Citizen Sensor Networks, <i>National Centre of Scientific Research “DEMOKRITOS”, Institute of Informatics and Telecommunications, Athens, Greece</i>	Jun 2010

SERVICE AND MEMBERSHIP

Service

Organiser for DTU Summer School (verified by EES-UETP): *“Uncertainty in Electricity Markets and System Operation”* hosting 48 participants and 10 lecturers, *Copenhagen, Denmark* Jul 2016

Reviewer

European Journal of Operational Research	
IEEE Transactions on Power Systems	
International Journal of Electrical Power and Energy Systems	
IEEE PowerTech Conference	2016
Power Systems Computation Conference (PSCC)	2016
International Conference on Electronic Commerce (ICEC)	2011
AAMAS Workshop on Agent-Mediated Electronic Commerce	2010 2013

Member

Institute of Electrical and Electronics Engineers (IEEE)
Power & Energy Society (PES)
International Association for Energy Economics (IAEE)

Oct 2013 - Present
Mar 2016 – Present

COMMUNITY SERVICE

Hellenic Army, Signal Corps

Obligatory military service, Prvt, Systems Administrator

Nov 2003 – Nov 2004

Activities within University

Representative in department's general assembly

Oct 2000 – Oct 2003

Representative in department's curriculum development committee

Oct 2000 – Oct 2002

PEER REVIEWED ACADEMIC PUBLICATIONS

Chapters in Books

- [1] 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, pp. 104-118. Springer, Heidelberg, 2013. [PDF](#)
- [2] 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

- [3] 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](#)
- [4] A. Papakonstantinou, P. Pinson, Information Uncertainty in Electricity Markets: Introducing Probabilistic Offers. *IEEE Transactions on Power Systems*, 31, (6), pp. 5202-5203, 2016. [PDF](#)
- [5] 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](#)
- [6] A. Papakonstantinou, P. Bogetoft, Short Communication: DEA based auctions. *European Journal of Operational Research*, 231, (2), pp 507-511, 2013. [PDF](#)
- [7] 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

- [8] 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](#)
- [9] 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](#)
- [10] 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*, 2015. [PDF](#)
- [11] 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](#)
- [12] 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)*, 178, pp. 448-452, 2008. [PDF](#)

Theses

- [13] A. Papakonstantinou, Mechanism Design for Eliciting Costly Observations in Next Generation Citizen Sensor Networks, *PhD Thesis, Southampton University, UK*, 2010. [PDF](#)
- [14] A. Papakonstantinou, The El Farol Bar problem for next generation systems, *MSc Dissertation, The University of York, UK*, 2006. [PDF](#)

Further Publications

- [15] A. Papakonstantinou, P. Pinson, Accountability for Uncertainty in Electricity Markets. *Abstract in 39th IAEE International Conference - Energy: Expectations and Uncertainty*, 2016. [PDF](#)