

STEFANOS LEONARDOS

Current Position: **Postdoctoral Research Fellow**
Engineering Systems & Design (ESD)
Singapore University of Technology & Design (SUTD)

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[[personal website](#)], [[professional website](#)], [[Google Scholar](#)]

Personal: Born in Athens, Greece, December 1981.

EMPLOYMENT

- 2018–21 Singapore University of Technology & Design (SUTD)**
- Postdoctoral Research Fellow
 - Project (2019–21): “A Dynamical Systems Approach to Algorithmic Game Theory”
 - Project (2018–19): “Testing Blockchain Security by Design”
- 2017–18 University of Crete (UoC)**
- Researcher: European Structural and Investment Funds
- 2014–16 University of Athens (NKUA)**
- Doctoral Researcher: Excellence II, European Social Fund for Research

EDUCATION

- 2017 PhD in Game Theory** University of Athens (NKUA)
· Excellent. Advisor: C. Melolidakis
- 2012 M.Sc. in Statistics & Operations Research** University of Athens (NKUA)
· Valedictorian 10/10
- 2009 Diplom in Mathematics** Technische Universität Darmstadt (TUD)
· Distinction 1.0/1.0
- 2004 B.Sc. in Business Administration** Athens University of Economics & Business (AUEB)

RESEARCH & TEACHING INTERESTS

- Research** Game Theory: artificial intelligence, multi-agent systems, blockchains, markets, dynamics, voting
Operations Research: pricing, oligopolies, queueing theory
- Teaching** Game Theory, Operations Research, Probability & Statistics

SCHOLARSHIPS & AWARDS

- 2021** · Best Paper Award: 35th AAAI Conference on Artificial Intelligence (AAAI-21)
- 2020** · Best Paper Award: 3rd Annual Decentralized Conference
- 2019** · Best Paper Award: IEEE Conference on Blockchain and Cryptocurrency (IEEE-ICBC)
· Best Paper Award: Conference on Mathematical Research for Blockchain Economy (MARBLE)
- 2017 Greek Institution of State Scholarships (IKY)**
· Ranked 6th in Natural Sciences: Kindly declined (due to financial reasons)
- 2013–16 Alexander S. Onassis, Public Benefit Foundation**
· Scholarship for doctoral studies
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- 2019-20 SUTD: Outstanding Teaching Assistant Award**
- 2019 SUTD: Best Poster Award at SUTD Research Fest (Co-Author)**
- 2018 Lake Como School of Advanced Studies**
· Summer School Fellowship “Game Theory and Voting Systems”.
- 2008–09 Socrates–Erasmus Fellowship: Darmstadt & Athens. Grade: 10/10 (24 ECTS)**
Scuola Matematica Interuniversitaria: Summer School Fellowship: “C₀-Semigroups”.

JOURNAL PUBLICATIONS

- [J11] S. Leonardos, C. Melolidakis & C. Koki, *Monopoly Pricing in Vertical Markets with Demand Uncertainty*, **Annals of Operations Research**, (2021). [[DOI](#)]
- [J10] S. Leonardos, C. Melolidakis, *On the Mean Residual Life of Cantor-Type Distributions: Properties and Economic Applications*, **Austrian Journal of Statistics**, (2021). [[DOI](#)]
- [J9] Y. Dimitrakopoulos, A. Economou & S. Leonardos, *Strategic customer behavior in a queueing system with alternating information structure*, **European Journal of Operational Research**, (2020). [[DOI](#)]
- [J8] S. Leonardos, D. Reijsbergen, G. Piliouras, *PREStO: A Systematic Framework for Blockchain Consensus Protocols*, **IEEE Transactions in Engineering Management**, (2020). [[DOI](#)]
- [J7] S. Leonardos & C. Melolidakis, *On the Equilibrium Uniqueness in Cournot Competition with Demand Uncertainty*, **The B.E. Journal of Theoretical Economics**, (2020). [[DOI](#)]
- [J6] V. Buterin, D. Reijsbergen, S. Leonardos & G. Piliouras, *Incentives in Ethereum's Hybrid Casper Protocol*, **International Journal of Network Management**, (2020). [[DOI](#)]
- [J5] S. Leonardos, D. Reijsbergen, G. Piliouras, *Weighted Voting on the Blockchain: Improving Consensus in Proof of Stake Protocols*, **International Journal of Network Management**, (2020). [[DOI](#)]
- [J4] C. Koki, S. Leonardos & G. Piliouras, *Do Cryptocurrency Prices Camouflage Latent Economic Effects? A Bayesian Hidden Markov Approach*, **MDPI Future Internet**, (2020). [[DOI](#)]
- [J3] S. Leonardos & C. Melolidakis, *Endogenizing the cost parameter in Cournot oligopoly*, **International Game Theory Review**, to appear (2020). [[DOI](#)]
- [J2] S. Leonardos & C. Koki, *Coalitions & Voting Power in the Greek Parliament of 2012: A Case-Study*, **Homo Oeconomicus**, (2019). [[DOI](#)]
- [J1] S. Leonardos & C. Melolidakis, *On the commitment value and commitment optimal strategies in bimatrix games*, **International Game Theory Review**, (2018). [[DOI](#)]

CONFERENCE PUBLICATIONS

- [C7] Y.K. Cheung, S. Leonardos & G. Piliouras, *Learning in Markets: Greed Leads to Chaos but the Price is Right*, [**IJCAI-21**] 30th International Joint Conference on Artificial Intelligence, (2021). [[arXiv](#)]
- [C6] S. Leonardos & G. Piliouras, *Exploration-Exploitation in Multi-Agent Learning: Catastrophe Theory meets Game Theory*, [**AAAI-21**] 35th AAAI Conference on Artificial Intelligence, (2021). [[arXiv](#)] [[Best Paper Award](#)]
- [C5] S. Leonardos, I. Sakos, C. Courcoubetis & G. Piliouras, *Catastrophe by Design in Population Games: Destabilizing Wasteful Locked-in Technologies*, [**WINE-20**] 16th Conference on Web and Internet Economics, (2020). [[arXiv](#)]
- [C4] C. Koki, S. Leonardos & G. Piliouras, *Do Cryptocurrency Prices Camouflage Latent Economic Effects? A Bayesian Hidden Markov Approach*, **3rd Annual Decentralized Conference**, (2019). [[DOI](#)] [[Best Paper Award](#)]
- [C3] N. Leonardos, S. Leonardos and G. Piliouras, *Oceanic Games: Centralization Risks and Incentives in Blockchain Mining*, [**MARBLE**] International Conference on Mathematical Research for Blockchain Economy, (2019). [[DOI](#)] [[Best Paper Award](#)]
- [C2] S. Leonardos, D. Reijsbergen, G. Piliouras, *Weighted Voting on the Blockchain: Improving Consensus in Proof of Stake Protocols*, [**IEEE-ICBC**] IEEE International Conference on Blockchain and Cryptocurrency, (2019). [[DOI](#)] [[Best Paper Award](#)]
- [C1] V. Buterin, D. Reijsbergen, S. Leonardos & G. Piliouras, *Incentives in Ethereum's Hybrid Casper Protocol*, [**IEEE-ICBC**] IEEE International Conference on Blockchain and Cryptocurrency, (2019). [[DOI](#)]

REFEREED BOOK CHAPTERS

- [B3] S. Leonardos & C. Koki, *Political Indicators in Germany and Greece: Evolving Political Systems, Distinct Paths and a Mutual Future*, **German-Greek Yearbook of Political Economy (invited)**, Vol.3, pp:5–29, (2020). [[Book](#)]
- [B2] C. Koki, S. Leonardos & C. Melolidakis, *Comparative Statics via Stochastic Orderings in a Two-Echelon Market with Upstream Demand Uncertainty*, **AIRO Springer Series**, AIROSS, volume 1, p:331–343 (2019). [[DOI](#)]
- [B1] C. Koki, S. Leonardos & C. Melolidakis, *Measuring Market Performance with Stochastic Demand: Price of Anarchy and Price of Uncertainty*, **Belief Functions: Theory and Applications**, LNCS, volume 11069, p:163–171, (2018). [[DOI](#)]

WORKING PAPERS

- C. Koki, S. Leonardos & G. Piliouras, *Exploring the Predictability of Cryptocurrencies via Bayesian Hidden Markov Models*, minor revision in **Research in International Business and Finance**. [[arXiv](#)]
- S. Leonardos, E. Petrakis, P. Skartados & G. Stamatopoulos, *Partial Passive Ownership Holdings, Licensing and Taxation*, revise & resubmit in **Economics Letters**. [[SSRN](#)].
- S. Leonardos, K. Spendlove & G. Piliouras, *Convergence of Q-learning in Rescaled Network Zero-Sum Games*, work in progress.
- S. Leonardos, I. Panageas, W. Overman & G. Piliouras, *Convergence of Policy Gradient in Markov Potential Games*, work in progress.
- S. Leonardos, B. Monnot, D. Reijsbergen, S. Skoulakis & G. Piliouras, *Dynamical Analysis of the EIP-1559 Ethereum Fee Market*, under review. [[arXiv](#)]
- S. Leonardos, I. Sakos, C. Courcoubetis & G. Piliouras, *Catastrophe by Design in Population Games: Destabilizing Wasteful Locked-in Technologies*, under submission (journal version). [[arXiv](#)]
- Y.K. Cheung, S. Leonardos & G. Piliouras, *Griefing and Market Equilibria in the Blockchain Economy*, under anonymous review (pdf/code available).
- S. Leonardos & C. Melolidakis, *A Class of Distributions for Linear Demand Markets*, under submission . [[arXiv](#)]

ADVISOR UNDERGRADUATE RESEARCH

- Y.K. Cheung, S. Leonardos, G. Piliouras & S. Sridhar, *Allocation of Mining Resources in the Blockchain Economy*, a preliminary version appears in **[WINE 2020] Workshop on Game Theory in Blockchain**, (2020) [[abstract](#)].
- B. Monnot, Q. Z. Hum, C.S. M. Koh, S. Leonardos & G. Piliouras, *Ethereum's Transaction Fee Reform in EIP 1559*, a preliminary version appears in **[WINE 2020] Workshop on Game Theory in Blockchain**, (2020) [[abstract](#)].

TEACHING EXPERIENCE

- 2020-2021 Singapore University of Technology and Design**
 - Instructor: 40.316 Game Theory (Fast track)
 - Teaching Assistant: 40.316 Game Theory
- 2011-2017 Arnos, Private Institute for Higher Education**
 - E-learning & Instructor: Probability, Statistics, Operations Research,
 - Dynamic Programming, Stochastic Processes, Quality Control
- 2012-2014 University of Athens, Department of Mathematics**
 - Teaching Assistant: Game Theory, Probability I, II
- 2006-2008 TU Darmstadt, Department of Mathematics**
 - Teaching Assistant: Functional Analysis

REVIEWER SERVICES

- European Journal of Operational Research || IEEE Access || IEEE Transactions in Engineering Management || Frontiers in Blockchain || Conference on Web and Internet Economics (WINE) || Symposium on Algorithmic Game Theory (SAGT) || Applied Stochastic Models in Business and Industry || Greek Mathematical Review
- TCP International Conference on Mathematical Research for Blockchain Economy (MARBLE)

SELECTED TALKS

- 2021 **IJCAI-21**, 30th International Joint Conference on Artificial Intelligence
AAAI-21, 35th AAAI Conference on Artificial Intelligence (online)
Athecrypt 2021, Athens Cryptography Days (invited)
FOCODILE 2nd International Workshop on Foundations of Consensus and Distributed Ledgers (invited)
- 2020 **WINE 2020**, 16th Conference on Web and Internet Economics (online)
ASSET 2020, Meeting of the Association of Southern European Economic Theorists (virtual)
CRC 2020, 3rd Cryptocurrency Research Conference (online)
FOCODILE, part of DisCoTec 2020 (online)
- 2019 **MARBLE 2019**, International Conference on Mathematical Research on Blockchain Economy
University of Crete, invited talk on “Game Theory and Blockchains”
Decentralized 2019, The Premier Blockchain Conference in Europe
CRETE 2019, International Conference on Research on Economic Theory and Econometrics
IEEE-ICBC, IEEE International Conference on Blockchain and Cryptocurrency, Seoul, South Korea
- 2018 **CRETE2018**, International Conference on Research on Economic Theory and Econometrics
MCDA 2018, 12th Multicriteria Decision Aid Meeting
OLIGO, Workshop 2018 in Piraeus
- 2017 **Stony Brook**, Center for Game Theory, 28th International Conference (contributed)
Technion, 9th International Conference of the Israeli Chapter, GTS
SDSU, Jerome J. Lohr College of Engineering (invited)
- 2016 **GAMES 2016**, 5th World Congress of the Game Theory Society
GTM 2016, 10th International Conference on Game Theory and Management
SING12, 12th European Meeting on Game Theory (contributed)
- 2015 **M3ST 2015**, International Conference on Modern Mathematical Methods
Excellence II, Part of the European Social Fund Research funding program

CONSULTING – NON ACADEMIC

- 2014–2015 **TERNA Energy, GEK Terna Group**
· Statistical analysis, Matlab in “*Eagles and Bats conservation project, Idaho, US*”
- 2009 **EUREX Clearing AG, Gruppe Deutsche Börse**
· Intern: Clearing Business Development
- 2009–2010 **Military Service**: Rhodos, Greece

COMPUTER SKILLS

- Matlab, Python, LaTeX, Mathematica, SPSS, Minitab.
- “Algorithms, a 4-Course Specialization”, by Stanford University on Coursera, 2017. Grade: 100%.
- “Design & Analysis of Algorithms”, graduate course by E. Markakis (AUERB), 2018. Grade: 9.5/10.

LANGUAGES

Greek (native), **German** (Abitur 1.7), **English** (Cambridge Certificate of Proficiency in English, IELTS 8.5/9)

OTHER

- **Professional Bodies – Societies**
MENSA Greece
AAAI Society
Game Theory Society
American Economics Association
Hellenic Economic Chamber
Hellenic Mathematical Society
Alumni Association of the German School of Athens
- **Graduate Student Union, Mathematics Department**, Elected trustee (2011-2013)
- **German School of Athens**, Greek & German graduation (1999): Excellent (19.2/20).

RECOMMENDATIONS

Georgios Piliouras **Singapore University of Technology and Design**

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Antonis Economou **National and Kapodistrian University of Athens**

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Evangelos Markakis **Athens University of Economics & Business**

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