

1-4/19
11:00

Math
PhD
3 hours per week
Huy

DR. SOFOCLIS ZAMBININIS

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Current Position

2/2021-present: **Network Data Scientist (post-doctoral researcher)** (full-time)
Department of Electrical Engineering, Computer Engineering & Informatics,
Cyprus University of Technology (CUT), Limassol, Cyprus

Main duties: Research in:

- Complex networks, time-varying hyperbolic geometric graphs, network geometry, network dynamics, statistical mechanics, hyperbolic geometry.
- Higher Transcendental Functions & Elliptic Integrals (Gaussian Hypergeometric ${}_2F_1$, Appell's F_1 , and Lauricella's F_D series).

Previous Professional Experience

9/2010-6/2019 & 9/2020-1/2021 **Mathematics Teacher** (full-time) – *Zambirinis Private Institute*, Paphos, Cyprus.
Main duties: Teaching:

- GCE A-Level: Pure Mathematics, Mechanics, Statistics
- Elementary mathematics for grades 7-12

8/2018-6/2019: **Data Scientist & Consultant** (part-time) – *Electi Consulting Ltd*, Limassol, Cyprus.

Main duties: Research in:

- Cryptography (Goppa codes, McEliece Cryptosystem, Ring Signatures)
- Blockchain Technologies
- Machine Learning

2/2017-9/2017: **Lecturer in Statistics** (part-time) – *Neapolis University Pafos*, Cyprus:

- STAT102 – Statistics for Business I, Spring 2017

9/2012-6/2013: **Teaching Assistant in Mathematics & Statistics** (part-time) – *Neapolis University Pafos*, Cyprus:

- STAT102 - Statistics for Business I, Spring 2013
- STAT202 - Statistics for Business II, Fall 2012
- MATH102 - Mathematics for Business, Fall 2012

Other Work Experience

12/2019-7/2020: **Officer** – Ministry of Finance, Nicosia, Cyprus

9/2019-12/2019: **Data Protection Officer** – *Office of the Commissioner for Personal Data Protection*, Nicosia, Cyprus

Education

2012-2019: **PhD Management Science (Optimization)** (part-time) – *Lancaster University*, UK

- *Area of expertise:* Optimization in Vehicle Routing and Scheduling.
- *Thesis title:* 'Disruption Management in Vehicle Routing and Scheduling'.
- *Supervisor:* Professor Richard Eglese
- *Research interests:* Combinatorial Optimization, Mathematical Programming, Multi-Objective Optimization, Metaheuristic Algorithms, Vehicle Routing Problems (exact & heuristic methods), Scheduling Problems, Transportation Systems, Disruption Management.
- *Viva outcome:* PhD awarded without corrections.

2009-2010: **MPhil Statistical Science** – *University of Cambridge, UK*

- *Thesis title:* Models for predicting health outcomes (Distinction)
- *Supervisor:* Professor David Spiegelhalter
- *Mathematical modeling in healthcare:* Designed a ‘cardiovascular risk profiling system’, using the theory of survival analysis with competing risks, and implemented in ‘R’ programming language, to aid doctors of the NHS (UK) in patient assessment and treatment.

2005-2009: **BSc Mathematics** (GPA 9.4/10, Rank: top 1% of class) – *University of Athens, Greece*

Selected modules:

<u>Subject</u>	<u>Grade</u>	<u>Subject</u>	<u>Grade</u>	<u>Subject</u>	<u>Grade</u>
Calculus I, II, III	10, 10, 10	Combinatorics	10	Probability Theory I, II	10, 9
Linear Algebra I, II	10, 10	Graph Theory	10	Discrete Mathematics	10
Analytic Geometry	10	Number Theory	10	Didactics of Mathematics II	10
Differential Geometry	10	Sampling Theory	10	Ancient Greek Mathematics	10
Differential Equations	10	Mechanics I, II	10, 10	Algorithms & Complexity	10
Computer Science I, II	10, 10	Game Theory	10		

2000-2003: **Lyceum apolytirion** (19.9/20, Rank: top 1% of school) – *Kykkos Lyceum Paphos, Cyprus*

2001-2004: **GCE A-Level:** Mathematics (A), Further Mathematics (A), Physics (A), Statistics (A)

Teaching Experience:

- University Teaching (Lecturer):
 - “Statistics for Business I” (Spring 2016-17), Dept. of Economics & Business, Neapolis University Pafos.
- University Teaching (Teaching Assistant):
 - “Statistics for Business I” (Spring 2012-13), Dept. of Economics & Business, Neapolis University Pafos.
 - “Statistics for Business II” (Fall 2012-13), Dept. of Economics & Business, Neapolis University Pafos.
 - “Mathematics for Business I” (Fall 2012-13), Dept. of Economics & Business, Neapolis University Pafos.
- Lower Secondary & Upper Secondary Education (Mathematics Teacher):

10 years of experience in teaching:

 - “Mathematics” for Grades 7-12 (2010-2019 & 9/2020-1/2021), Zambirinis Private Institute, Paphos.
 - “Pure Maths GCE A-Level” (P1,P2,P3,P4,FP1,FP2,FP3) (2010-19), Zambirinis Private Institute, Paphos.
 - “Mechanics GCE A-Level” (M1,M2,M3,M4,M5) (2010-2019), Zambirinis Private Institute, Paphos.
 - “Statistics GCE A-Level” (S1, S2, S3, S4) (2010-2019), Zambirinis Private Institute, Paphos.

Publications

1. Zambirinis, S., Hartle, H., & Papadopoulos, F. (2022). *Dynamics of cold random hyperbolic graphs with link persistence*. *Physical Review E*, 106(6), 064312. doi: <https://doi.org/10.1103/PhysRevE.106.064312> (arXiv)
2. Papadopoulos, F., & Zambirinis, S. (2022). *Dynamics of hot random hyperbolic graphs*. *Physical Review E*, Vol. 105, Issue 2, 024302. doi: <https://doi.org/10.1103/PhysRevE.105.024302> (arXiv)

3. Eglese, R. W. & Zambirinis, S. (2018). *Rejoinder on: Disruption management in vehicle routing and scheduling for road freight transport: a review*. *TOP*, vol. 26, no. 1, pp. 27-29. doi: <https://doi.org/10.1007/s11750-018-0470-y>
4. Eglese, R. W. & Zambirinis, S. (2018). *Disruption management in vehicle routing and scheduling for road freight transport: a review*. *TOP*, vol. 26, no. 1, pp. 1-17. doi: <https://doi.org/10.1007/s11750-018-0469-4>

Working Papers

1. *Inferring link persistence in temporal networks*, with F. Papadopoulos.
2. *The Delayed Traveling Salesman Problem with Time Windows*, with R. Eglese.
3. *The Single-Commodity Vehicle Routing Problem with Time Windows and Delay*, with R. Eglese.
4. *The disrupted Vehicle Routing Problem with vehicle breakdown & customer-specific orders*, with R. Eglese.

Conference Presentations

1. Zambirinis, S. & Eglese, R. W. *The disrupted Vehicle Routing Problem with Vehicle Breakdown*. VeRoLog 2014, Oslo, Norway 22-25 June 2014.
2. Zambirinis S., Rodriguez-Flores M.A., Hartle H., & Papadopoulos F. *Dynamics of random hyperbolic graphs*. NetSci 2023, Vienna, Austria 10-14 July 2023.

Workshops

- EURO PhD School on Routing and Logistics (University of Brescia, Italy, 24 June – 3 July 2015)
- NATCOR workshop: Combinatorial Optimization (University of Southampton, UK, 9–13 September 2013)
- NATCOR workshop: System Dynamics (Loughborough University, UK, 13 July 2013)
- NATCOR workshop: Simulation (Loughborough University, UK, 8–12 July 2013)
- NATCOR workshop: Data Envelopment Analysis (Brunel University, UK, 7 July 2012)
- NATCOR workshop: Convex Optimization (Brunel University, UK, 2–6 July 2012)
- NATCOR workshop: Heuristics & approximation algorithms (Nottingham University, UK 16-20 Apr.2012)

Professional Activities

- **Problem Coordinator** – 30th Balkan Mathematical Olympiad (Cyprus, 2013)
- **Member** – Cyprus Mathematical Society (2009-present)

Honours/Awards (International Level)

- **International Mathematical Olympiads (IMO):**
 - 45th IMO, Greece 2004: **Bronze medal & highest score for Cyprus National team**
 - 44th IMO, Japan 2003: participation
 - 43rd IMO, UK 2002: participation & **highest score for Cyprus National team**
 - 42nd IMO, USA 2001: **Honourable Mention**
- **Balkan Mathematical Olympiads (BMO):**
 - 20th BMO, Albania 2003: **Bronze medal & highest score for Cyprus National team**
 - 19th BMO, Turkey 2002: **Bronze medal & highest score for Cyprus National team**
 - 18th BMO, Yugoslavia 2001: participation
- **Junior Balkan Mathematical Olympiad (JBMO):**
 - 4th JBMO, FYROM 2000: **Bronze medal & highest score for Cyprus National team**
- **International Chemistry Olympiad (IChO):**
 - 35th IChO, Greece 2003: participation

Honours/Awards (National level)

- **National Mathematics Competition: 1st Rank (2003), 1st Rank (2002), 1st Rank (2001), 2nd Rank (2000)**
- **Cyprus Math. Olympiad: Gold & 1st Rank (2003), Gold & 1st Rank (2002), Silver (2001), Silver (2000)**
- **National Physics Olympiad: 1st Rank (2001), 2nd Rank (2002)**
- **National Chemistry Olympiad: 2nd Rank (2003)**
- **National Informatics Olympiad: 2nd Rank (2004)**

IT Skills:

- **Computer Programming:** MATLAB (advanced), R (advanced), C (intermediate), Python (intermediate).
- **Other:** LaTeX (expert), MS Office, SQL (intermediate).

Languages:

- Greek (native)
- English (full professional proficiency)

Scholarships

- 2005-10: Cyprus State Scholarships Foundation – 4-year Undergraduate & 1-year Postgraduate Scholarships
- 2005-09: Greek State Scholarships Foundation – Awards for Excellent Academic Performance

Military Service

7/2003-8/2005: **Second Lieutenant** – Cypriot National Guard.