

Short CV-Sotiris Batsakis

Dr Sotirios Batsakis is Assistant Professor at the Electrical and Computer Engineering Department at Hellenic Mediterranean University. He received a Diploma from the Department of Computer Engineering and Informatics of the University of Patras, Greece, with highest distinction in 2000, focusing in the broad field of foundations of computer science and with a diploma thesis on cryptography and computer security. He also holds a Master's Degree (Master thesis on Machine Learning with application of information retrieval on the World Wide Web) and a PhD (thesis on Representation and Reasoning of Spatial and Temporal Information on the Semantic Web) from the Technical University of Crete, Greece, (graduation in 2008 and 2011 respectively). During his studies he received a total of 8 performance scholarships. After completing his military service as a reservist officer, he worked in the private sector as an IT engineer and as an IT teacher with many years of teaching experience, mainly in technical education.

After having earned his Ph.D. he taught at the University of Huddersfield for 2 years as a Senior Lecturer and was responsible for teaching undergraduate and postgraduate courses and then continued collaborating with the University of Huddersfield as an Affiliated Senior Research Fellow. Between 2017 and 2024 he has worked as a member of the teaching and laboratory staff at the Technical University of Crete and his duties included teaching undergraduate and graduate courses, laboratory teaching, theses supervision and research in the field of knowledge representation and intelligent systems. Since 2024 he has been a faculty member at the Hellenic Mediterranean University working on the area of Artificial Intelligence.

He has participated in research projects in the field of Artificial Intelligence, Semantic Web and Internet Information Retrieval, Temporal and Spatial Representation and Reasoning, Big Data and IoT. Projects that he has participated in include: PORTDIAL EU Project, PRELIDA EU Project, SimplifAI UK NERC Project, SemData EU Project, MIREL EU project and RECOMBINE EU project having a leading role in the field of knowledge representation. He has been a visiting researcher (Marie Curie fellowships) at the RMIT University (Melbourne, Australia), Southeast University (Nanjing, China), University of Cape Town (South Africa), DLV Systems at University of Calabria (Italy) Data61, CSIRO (Brisbane, Australia), UFCG (Campina Grande, Brazil) and Princeton University (USA). Results of the above-mentioned research activities and collaborations are, as of 2024, 60 publications in international scientific journals and conferences. These include top A/A* ranking conferences such as SSTD, ICLP, ESWC, ISWC, and AAAI. In 24 of these he is the main author. He has also served as a reviewer at a number of international scientific conferences and journals.

SOTIRIOS BATSAKIS
Curriculum Vitae

Born: September 30, 1977

Citizenship: Greek

Marital Status: Married, with three children

Current Employment: Assistant Professor, Hellenic Mediterranean University, Heraklion, Greece

E-mail: sbatsakis@hmu.gr

University Education:

2007-2011:

PhD in Electronics & Computer Engineering Electronics & Computer Engineering
Department Technical University of Crete.

Thesis Title: "SOWL: A Framework for Handling Spatio-Temporal Information in OWL".

2004-2007:

M.Sc. in Electronics & Computer Engineering (Part Time), Electronics & Computer
Engineering Department, Technical University of Crete

1995-2000:

Computer Engineering & Informatics Diploma, University of Patras.

Grade point average: 8.5/10 with highest distinction

Work Experience:

2024-now: Assistant Professor, Department of Electrical and Computer Engineering,
Hellenic Mediterranean University

2017-2024: Teaching and Lab staff at Technical University of Crete, Chania, Greece.

2019-2024: Scientific Collaborator (External Faculty member), European University
Cyprus.

2015-2024: Affiliated Senior Research Fellow, University of Huddersfield.

2013-2015: Senior Lecturer at the University of Huddersfield

Summer 2023: Visiting Researcher, UFCG, Brazil

Summer 2022: Visiting Researcher, Princeton University, USA

Summer 2018: Visiting Researcher, Data61, CSIRO, Brisbane, Australia

Summer 2017: Visiting Researcher, DLV Systems, Calabria, Italy

Summer 2016: Visiting Researcher, University of Cape Town, South Africa

Summer 2015: Visiting Researcher, Southeast University, Nanjing, Jiangsu, China

Summer 2014: Visiting Researcher, RMIT University, Melbourne Australia

2012-2013: Post Doctoral Researcher at Telecommunication System Research Institute (TSI), Technical University of Crete, Chania, Greece.

2003-2013 & 2015-2017: Technical Secondary Education Teacher of Informatics, Chania, Greece.

2002-2003: Computer Engineer at Expertnet S.A. Athens, Greece

2000-2002: Reservist Officer, Greek Army (compulsory military service)

Teaching Experience:

2024-now: Assistant Professor, Hellenic Mediterranean University

2017-2024: Teaching and Lab Staff , Technical University of Crete:

Undergraduate modules:

- 2017-2019: E-commerce (Module Leader)
- 2019-2024: ERP/CRM Systems (Module Leader)
- 2019-2024: Decision Support Systems (Co-teaching, practicals)

Graduate Modules:

- 2018-2019: MTIM program: Business Intelligence and Knowledge Management (Co-teaching)
- 2019-2021: MBA Program: E-Commerce & Digital Marketing (Co-teaching)

- 2021-2022: Operations Management Program (Joint TUC & University of Western Attica Program): E-Commerce & Digital Marketing (Co-teaching)

2019-2024: Scientific Collaborator (External Faculty member), European University Cyprus

- 4/2019-8/2020: Committee member for developing course syllabi for the Masters in AI program (Distance Education Unit)
- 9/2020-2024: Graduate module: Foundations of AI (Module Leader)

2013-2015: Senior Lecturer, University of Huddersfield

- Undergraduate modules: Operating Systems, Large Systems Environments (Module Leader)
- Graduate module: Integrative Project (Module Leader)

Research Projects (2012-2024)

- H2020 RISE RECOMBINE: Research Collaboration and Mobility for Beyond 5G Future Wireless Networks, EU Project
- AI technology for ADHD diagnosis, UK Government, South West Yorkshire NHS Foundation Trust
- An AI-based screening tool to clinically triage Podiatry referrals, UK Government, Locala Community Partnerships CIC
- A Machine Learning Method for Semi-Automatic Diagnosis of Autism in Adults, UK Government South West Yorkshire NHS Foundation Trust
- An Artificial Intelligence diagnostic tool for Attention Deficit Hyperactive disorder (ADHD) in adults, Grow Medtech, South West Yorkshire NHS Foundation Trust,
- MIREL: MIning and REasoning with Legal texts, EU Project,
- SemSpine: Semantically Enabled Middleware Platform SemSpine, BT plc
- SimplifAI: NERC Project
- SemData: Semantic Data Management, EU Project,
- Prelida: Preserving Linked Data, EU Project,
- Portdial EU Project

Distinctions-Scholarships:

2nd (among 30 students) postgraduate student at Electronics & Computer Engineering Department, academic year 2004-2005, Technical University of Crete.

Among top 3 students (out of 120), Computer Engineering & Informatics Department, University of Patras, academic years 1995-1996, 1996-1997, 1997-1998.

Performance Scholarships for achieving grade point average above 8/10, Computer Engineering & Informatics Department, University of Patras, academic years 1995-1996, 1996-1997, 1998-1999, 1999-2000.

Activities:

Journal Reviewer: Theory and Practice of Logic Programming (TPLP), Information Systems (INFOSYS), Journal of Artificial Intelligence Research (JAIR), Transactions on Knowledge Discovery from Data (TKDD), International Journal of Metadata, Semantics and Ontologies (IJMSO), Operational Research, Transactions in GIS, Information, Artificial Intelligence Review (AIRE), Journal of Applied Logics- IfCoLog, Journal of Logics and their Applications (FLAP), International Journal of Decision Support Systems (IJDSS), Knowledge and Information Systems (KAIS), New Generation Computing (NGCO), Computing (COMP), Journal of Ambient Intelligence and Smart Environments (JAIS), Semantic Web Journal (SWJ), Journal of Knowledge Based Systems (KNOSYS), International Journal of Intelligent Information and Database Systems (IJIIDS), Sensors, International Journal on AI Tools (IJAIT), International Journal of Digital Earth .

Invited Speaker: AI4LEGAL 2020

Conference PC-chair: ICTERI15, ICTERI 2015-PP

Workshop co-organizer: 'Logic Programming and Legal Reasoning' at ICLP 2023

Conference PC member: EUSPN-24, CCKS-IJCKG 2024, ECAI2024, ECAI23, ICTERI23, ADBIS 2022, ICEBE 2022, LPNMR 2022, IJCAI 2021, ICLP 2021, ISWC2021, IJCAI-PRICAI2020, AAI-20 Programs, ICEBE 2020, IJCAI 2019, ICTERI 2019, AI4LEGAL 2019, LuxLogAI 2018, SETN 18, ICEBE 2018, SEMPER 2018, ICTERI 2018, ODBASE 2017, ICEBE 2017, MIREL 2017, ADBIS 2017, ICTERI 2017, ESWC 2017, MIWAI 2017, AI 2017 (Canadian Conference on Artificial Intelligence), ICTERI 2016-PP, ADBIS 2016, MIWAI 2016, ICEBE 2016, EUSPN-2016, ICTERI 2016, SEMPER-2016, AI 2016, MIWAI 2015, SETN 2016, SSN-TC 2015, AI 2015, Terra 2014, LION 13.

Research Interests:

Artificial Intelligence, Knowledge Representation, Semantic Web, Data Mining, Spatiotemporal Representation & Reasoning, Large Scale Reasoning.

Publications List:

2023

Emmanuel Papadakis, George Baryannis, Sotirios Batsakis, Marios Adamou, Zhisheng Huang, Grigoris Antoniou: ADHD-KG: A Knowledge Graph of Attention Deficit Hyperactivity Disorder. In Health Information Science and Systems (2023) 11:52, 2023.

Grigoris Antoniou and Sotiris Batsakis: Defeasible Reasoning with Large Language Models – Initial Experiments and Future Directions. In Proc. RuleML+RR'23: 17th International Rule Challenge and 7th Doctoral Consortium, September 18–20, 2023, Oslo, Norway, 2023.

Sotirios Batsakis, Emmanuel Papadakis, Ilias Tachmazidis, Tianhua Chen, Grigoris Antoniou and Marios Adamou: Neuro Intel: A System for Clinical Diagnosis of Attention Deficit Hyperactivity Disorder (ADHD) Using Artificial Intelligence. In Proc. of the 28th IEEE Symposium on Computers and Communications - Conference on ICT Solutions for eHealth (ICTS4eHealth 2023), 2023.

Tianhua Chen, Ilias Tachmazidis, Sotiris Batsakis, Marios Adamou, Emmanuel Papadakis and Grigoris Antoniou: Diagnosing Attention Deficit Hyperactivity Disorder (ADHD) using Artificial Intelligence: A Clinical Study in the UK. In Frontiers in Psychiatry journal, 2023.

Robaldo L., Batsakis S., Calegari R., Calimeri F., Fujita M., Governator G., Morelli MC, Pacenza F, Pisano G., Satoh K., Tachmazidis I., and Zangari J. : Compliance checking on first-order knowledge with conflicting and compensatory norms - a comparison among currently available technologies. In Artificial Intelligence and Law Journal, 2023

Yuzhou Chen, Sotiris Batsakis, H. Vincent Poor: Higher-order Spatio-temporal Neural Networks for COVID-19 Forecasting. In ICASSP 2023.

Sotirios Batsakis, Nikolaos Matsatsinis: Knowledge Based Artificial Intelligence, Methods and Applications. In Encyclopedia of Data Science and Machine Learning, John Wang ed., Chapter 181, 2023.

2022

Antoniu G., Atkinson K., Baryannis G., Batsakis S., Caro L.D., Governatori G.,

Robaldo L., Siragusa G., Tachmazidis I. : Explainable Reasoning with Legal Big Data: A Layered Framework. In *Journal of Applied Logics*, 9 (4), pp. 1087 - 1102, 2022.

Livio Robaldo, Sotiris Batsakis, Roberta Calegari, Francesco Calimeri, Megumi Fujita, Guido Governatori, Maria Concetta Morelli, Giuseppe Pisano, Ken Satoh and Ilias Tachmazidis: Taking stock of available technologies for compliance checking on first-order knowledge. In *CILC 2022*.

Mario Alviano, Sotiris Batsakis and George Baryannis: Modal Logic S5 in Answer Set Programming with Lazy Creation of Worlds. In *LPNMR 2022*

Sotirios Batsakis, Marios Adamou, Ilias Tachmazidis, Sarah Jones, Sofya Titarenko, Grigoris Antoniou and Thanasis Kehagias: Data-Driven Decision Support for Adult Autism Diagnosis Using Machine Learning. *Digital 2022*, 2(2), 224-243.

2021

Sotiris Batsakis, Marios Adamou, Ilias Tachmazidis, Grigoris Antoniou and Athanasios Kehagias: Data-Driven Decision Support for Autism Diagnosis using Machine Learning. In the 13th International Conference on Management of Digital EcoSystems (MEDES'21).

Alviano, Mario, Sotiris Batsakis, and George Baryannis: Modal Logic S5 Satisfiability in Answer Set Programming. In the 37th International Conference on Logic Programming (ICLP), Theory and Practice of Logic Programming (2021).

Antoniou G, Baryannis G, Batsakis S, Tachmazidis I, Governatori G, Islam MB, Liu Q, Robaldo L, Siragusa G. Large-Scale Legal Reasoning with Rules and Databases. *IfCoLoG Journal of Logics and their Applications*. 2021 May 1;8(4):911-39.

Sotirios Batsakis, Grigoris Antoniou: Reasoning over Bayesian Networks using Semantic Artificial Neural Networks. In 9th International Workshop on Combinations of Intelligent Methods and Applications (CIMA 2021)

2020

George Baryannis, Ilias Tachmazidis, Sotiris Batsakis, Grigoris Antoniou, Mario Alviano and Emmanuel Papadakis: A Generalized Approach for Encoding and Reasoning with Qualitative Theories in Answer Set Programming. *International Conference on Logic Programming (ICLP)*, 2020.

S Batsakis, I Tachmazidis, G Baryannis, G Antoniou: Semantic Artificial Neural Networks. Extended Semantic Web Conference 2020.

2019

Matthew Mantle, Sotirios Batsakis, Grigoris Antoniou: Large scale distributed spatio-temporal reasoning using real-world knowledge graphs. Knowl.-Based Syst. 163: 214-226 (2019).

Antoniou G, Batsakis S, Davies J, Duke A, McCluskey TL, Peytchev E, Tachmazidis I, Vallati M. Enabling the use of a planning agent for urban traffic management via enriched and integrated urban data. Transportation Research Part C: Emerging Technologies. 2019 Jan 1;98:284-97. 2019

2018

Sotiris Batsakis, George Baryannis, Guido Governatori, Ilias Tachmazidis and Grigoris Antoniou: Legal Representation and Reasoning in Practice: A Critical Comparison. JURIX 2018, pp 31-40, 2018.

Grigoris Antoniou, Sotiris Batsakis, Raghava Mutharaju, Jeff Z. Pan, Guilin Qi, Ilias Tachmazidis, Jacopo Urbani and Zhangquan Zhou: A Survey of Large-Scale Reasoning on the Web of Data. Knowledge Engineering Review Journal, vol. 33, 2018.

George Baryannis, Ilias Tachmazidis, Sotiris Batsakis, Grigoris Antoniou, Mario Alviano, Timos Sellis, Pei-Wei Tsai: A Trajectory Calculus for Qualitative Spatial Reasoning Using Answer Set Programming. TPLP 18(3-4): 355-371 (2018)

Ilias Tachmazidis, Sotiris Batsakis, John Davies, Alistair Duke, Grigoris Antoniou, Sandra Stincic Clarke: Optimizing a Semantically Enriched Hypercat-enabled Internet of Things Data Hub. SSN@ISWC 2018: 64-71

George Baryannis, Ilias Tachmazidis, Sotiris Batsakis, Grigoris Antoniou, Mario Alviano, Timos Sellis, Pei-Wei Tsai: A Trajectory Calculus for Qualitative Spatial Reasoning Using Answer Set Programming. CoRR abs/1804.07088 (2018)

Grigoris Antoniou, George Baryannis, Sotiris Batsakis, Guido Governatori, Livio Robaldo, Giovanni Siragusa and Ilias Tachmazidis Legal Reasoning and Big Data: Opportunities and Challenges, MIREL 2018@LuxLogAI 2018

2017

Tachmazidis I., Batsakis S., Davies J., Duke A., Vallati M., Antoniou G., Stincic Clarke S.. A Hypercat-enabled Semantic Internet of Things Data Hub, European Semantic Web Conference, ESWC (2) 2017: 125-137, 2017.

Batsakis S., Tachmazidis I., Antoniou G. : Representing time and space for the semantic web, International Journal on Artificial Intelligence Tools (IJAIT), Volume 26, Issue 03, June 2017.

Batsakis S., Petrakis E.G.M., Tachmazidis I., Antoniou G., :Temporal Representation and Reasoning in OWL 2, Semantic Web Journal (SWJ), 8(6): 981-1000, 2017.

2016

Brenton C, Wolfgang Faber W., Batsakis S.: Answer Set Programming for Qualitative Spatio-temporal Reasoning: Methods and Experiments. 32nd International Conference on Logic Programming (ICLP 2016), (Technical Communications), 4:1-4:15, 2016.

Mantle M., Sotirios Batsakis S., Antoniou G. :Large Scale Reasoning Using Allen's Interval Algebra. 15th Mexican International Conference on Artificial Intelligence (MICA I 2016), 2016.

Tachmazidis I., Davies J., Batsakis S., Antoniou G., Duke A., Stincic Clarke S.: Hypercat RDF: Semantic Enrichment for IoT. JIST 2016: 273-286, 2016

Stravoskoufos K., Petrakis E.G.M, Mainas N., Batsakis S., Samoladas V., : SOWL QL: Querying Spatio - Temporal Ontologies in OWL, Journal on Data Semantics, 5(4) pp. 249-269, 2016.

2015

Cerutti F., Tachmazidis I., Vallati M., Batsakis S., Giacomini M., Antoniou G. : Exploiting Parallelism for Hard Problems in Abstract Argumentation. AAI 2015: 1475-1481, 2015.

Batsakis S., Tachmazidis I., Antoniou G.: Representing Time for the Semantic Web. MIWAI 2015: 3-15, 2015

Brenton C., Faber W. Batsakis S: Solving Qualitative Spatio-temporal Reasoning Problems by Means of Answer Set Programming: Methods and Experiments, ASPOCP Workshop, 2015.

2014

Ermolayev V., Batsakis S., Keberle N., Tatarintseva O., Antoniou G.: Ontologies of Time: Review and Trends. International Journal of Computer Science & Applications, Vol 11(3), pp 57-114, 2014.

Preventis A., Petrakis E.G.M., Batsakis S. : CHRONOS Ed: A Tool for Handling Temporal Ontologies in Protégé. International Journal on Artificial Intelligence Tools, 23(4), 2014.

Batsakis S., G. Antoniou G. , I. Tachmazidis I. : Reasoning over Spatial Orientation Relations Using Rules. New Trends in Database and Information Systems II (ADBIS 2014), 123-134, 2014.

Batsakis S., Antoniou G., Tachmazidis I. : Integrated Representation of Temporal Intervals and Durations for the Semantic Web. New Trends in Database and Information Systems II (ADBIS 2014), 147-158, 2014.

Cerutti F., Tachmazidis I., Vallati M., Batsakis S., Giacomini M., Antoniou G. : Exploiting Parallelism for Hard Problems in Abstract Argumentation: Technical Report. arXiv preprint arXiv:1411.2800, 2014.

Batsakis S., Antoniou G., Tachmazidis I.: Integrated Representation of Spatial Topological and Size Relations for the Semantic Web. Multi-disciplinary Trends in Artificial Intelligence (MIWAI14), 208-219, 2014.

Antoniou G., Batsakis S., Tachmazidis I.: Large-Scale Reasoning with (Semantic) Data. WIMS 2014: 1, 2014.

Batsakis S., Antoniou G., Tachmazidis I. : Representing and Reasoning over Topological Relations in OWL. WIMS 2014: 29, 2014.

Anagnostopoulos E., Petrakis E.G.M., Batsakis S. : CHRONOS: Improving the performance of Qualitative Temporal Reasoning in OWL. ICTAI 2014, 309-315, 2014.

Batsakis S., Antoniou G. : Representing and Reasoning over Spatial Relations in OWL: A Rule-Based Approach. LGD Workshop, 2014.

2013

Anagnostopoulos E., Batsakis S., EGM Petrakis E.G.M. : CHRONOS: A Reasoning Engine for Qualitative Temporal Information in OWL. KES 2013: pp. 70-77, 2013.

Batsakis S. : Reasoning over 2D and 3D directional relations in owl: a rule-based approach. Theory, Practice, and Applications of Rules on the Web (RuleML13), 37-51, 2013.

2012

Preventis A., Makri X., Petrakis E., Batsakis S.: CHRONOS: A Tool for Handling Temporal Ontologies in Protege, 24th International Conference on Tools with Artificial Intelligence (ICTAI 2012), Athens, Greece. November 7-9, 2012.

Christodoulou G., Petrakis E., Batsakis S.: Qualitative Spatial Reasoning using Topological and Directional Information in OWL, 24th International Conference on Tools with Artificial Intelligence (ICTAI 2012), Athens, Greece. November 7-9, 2012.

Batsakis S., Petrakis E.: Imposing Restrictions Over Temporal Properties in OWL: A Rule-Based Approach, 6th International Symposium on Rules: Research Based and Industry Focused (RuleML 2012), Montpellier, France, August 27-29, 2012.

2011

Batsakis S., Stravoskoufos K., Petrakis E.: Temporal Reasoning for Supporting Temporal Queries in OWL 2.0, 15th International Conference on Knowledge-Based and Intelligent Information & Engineering Systems, 12-14, Kaiserslautern, Germany.

September 2011.

Batsakis S., Petrakis E.: SOWL: A Framework for Handling Spatio-Temporal Information in OWL 2.0, 5th International Symposium on Rules: Research Based and Industry Focused (RuleML' 2011), Barcelona, Spain, July 19-21, 2011.

Batsakis S., Petrakis E.: Integrated Ontologies for Spatial Scene Descriptions, in Qualitative Spatio-Temporal Representation and Reasoning: Trends and Future Directions, IGI Global (book chapter), S. M Hazarika (Eds), June 2011.

2010

Batsakis S., Petrakis E.: Representing Temporal Knowledge in the Semantic Web: the Extended 4d-fluents Approach, 2nd International Workshop on Combinations of Intelligent Methods and Applications (CIMA' 2010), Arras, France. October 27-29, 2010.

Batsakis S., Petrakis E.: SOWL:Spatio-temporal Representation, Reasoning and Querying over the Semantic Web, 6th International Conference on Semantic Systems (I-SEMANTICS' 2010), Graz, Austria, September 1-3, 2010.

Batsakis S., Petrakis E.: Representing and Reasoning over Spatio-Temporal Information in OWL 2.0, 6th Workshop on Semantic Web Applications and Perspectives (SWAP' 2010), Bressanone, Italy, September 21-22, 2010.

Batsakis S., Petrakis E.: SOWL: Representing Spatio-Temporal Information in OWL, 7th Extended Semantic Web Conference (ESWC'2010), Heraklion, Crete. Poster Paper. 30 May - 3 June, 2010.

2009

Batsakis S., Petrakis E., Milios E.: Improving the Performance of Focused Web Crawlers, Data & Knowledge Engineering (DKE) Journal, Vol. 68, No. 10, October 2009, pp. 1001-1013, 2009.

Baratis E., Maris N., Petrakis E., Batsakis S., Papadakis N.: The TOQL system, 11th International Symposium on Spatial and Temporal Databases (SSTD 2009), Aalborg, Denmark. Demo paper. July 8-10, 2009.

Baratis E., Batsakis S., Petrakis E., Maris N., Papadakis N.: TOQL: Temporal Ontology Querying Language, 11th International Symposium on Spatial and Temporal Databases (SSTD 2009), Aalborg, Denmark. July 8-10, 2009.