

Dimitrios I. Diochnos

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SCIENTIFIC INTERESTS

I am primarily interested in the design and analysis of machine learning algorithms with rigorous guarantees in the contexts of supervised learning, semi-supervised learning, adversarial learning, imbalanced data, and randomized search heuristics. Investigating these topics I try to provide statistical and computational bounds, or computational hardness results. In the absence of formal guarantees, I try to provide sound empirical conclusions.

ACADEMIC APPOINTMENTS

2019 –	Assistant Professor in Computer Science, University of Oklahoma (OU) , USA.
2015 – 2019	Hobby postdoctoral research associate, University of Virginia (UVA) , USA.
2013 – 2015	Postdoctoral research associate, University of Edinburgh , UK.

EDUCATION

2013	PhD, Department of Mathematics, Statistics, and Computer Science, University of Illinois at Chicago (UIC) , USA
2007	MSc, Interdisciplinary Graduate Program in Logic, Algorithms and Computation, Department of Mathematics, National and Kapodistrian University of Athens , Hellas
2004	Ptychion, Department of Informatics and Telecommunications, National and Kapodistrian University of Athens , Hellas

FUNDING

- NSF Award [ICER-2019758](#) *AI Institute: Artificial Intelligence for Environmental Sciences (AI2ES)*, Senior Personnel (Lead PI: Amy McGovern, PIs: Philippe Tissot, Christopher Thorncroft, Ruoying He, Imme Ebert-Uphoff), 2020–2025. Total budget: \$20,000,000. Total budget towards OU: \$4,000,000. DID Credit: \$400,000.

FELLOWSHIPS & OTHER AWARDS

Travel	OU Presidential International Travel Fellowship (Spring 2022, \$938).
OU VPRP Office	Annual Award for Excellence in Research Grants (April 2021; contribution as a PI/co-PI on a grant acquiring \$1 million or more in 2020).
Reviewing Award	NeurIPS 2023 Top Reviewers (Reserved Registration Spot) NeurIPS 2019 Top Reviewers (Reserved Registration Spot) IJCAI-16 Quality Reviewing (1 Blue Ribbon)
Teaching Award	MCS 260 - Introduction to Computer Science, Fall 2009.
Graduate	UIC Chancellor's Graduate Research Fellowship, Spring - Summer 2010; \$2,500. – Renewed for Second and Final Year (Maximum), Spring - Summer 2011; \$2,500.
Undergraduate	I fulfilled my studies with fellowship by “Zossima Brothers” foundation; \$3,000.

SCIENTIFIC ACTIVITIES & SERVICE

NSF	NSF Reviewer 2022.
July 2025	Program Committee Member, <i>42nd International Conference on Machine Learning, ICML 2025</i> , Vancouver, Canada. Homepage: https://icml.cc/Conferences/2025 .
February - March 2025	Program Committee Member, <i>39th AAAI Conference on Artificial Intelligence, AAAI 2025</i> , Philadelphia, PA, USA. Homepage: https://aaai.org/conference/aaai/aaai-25/ .

January 2025	Program Committee Member, <i>Northern Lights Deep Learning Conference</i> , NLDL 2025, Tromsø, Norway. Homepage: https://www.nldl.org/home .
December 2024	Area Chair, <i>38th Conference on Neural Information Processing Systems</i> , NeurIPS 2024, Vancouver, Canada. Homepage: https://neurips.cc/Conferences/2024 .
July 2024	Program Committee Member, <i>41st International Conference on Machine Learning</i> , ICML 2024, Vienna, Austria. Homepage: https://icml.cc/Conferences/2024 .
June 2024	Program Committee Member, <i>IEEE Conference on Artificial Intelligence</i> , IEEE CAI 2024, Singapore. Homepage: https://ieeecaai.org/2024/ .
June 2024	Program Committee Member, <i>IEEE/CVF Conference on Computer Vision and Pattern Recognition</i> , CVPR 2024, Seattle WA, USA. Homepage: https://cvpr.thecvf.com/Conferences/2024 .
April 2024	Program Committee Member, <i>60th ACM Southeast Conference</i> , ACMSE 2024, Marietta, Georgia, USA. Homepage: https://acmse.net/2024/ .
February 2024	Program Committee Member, <i>38th AAAI Conference on Artificial Intelligence</i> , AAAI 2024, Vancouver, BC, Canada. Homepage: https://aaai.org/conference/aaai/aaai-24/ .
January 2024	Webmaster, Publications, Publicity Chair, and Program Committee Member, <i>18th International Symposium on Artificial Intelligence and Mathematics</i> , ISAIM 2024, Fort Lauderdale, FL, USA. Homepage: https://isaim2024.cs.ou.edu .
December 2023	Program Committee Member, <i>37th Conference on Neural Information Processing Systems</i> , NeurIPS 2023, New Orleans, LA, USA. Homepage: https://neurips.cc/Conferences/2023 .
September-October 2023	Program Committee Member, <i>26th European Conference on Artificial Intelligence</i> , ECAI 2023, Kraków, Poland. Homepage: https://ecai2023.eu .
July 2023	Program Committee Member, <i>40th International Conference on Machine Learning</i> , ICML 2023, Honolulu, Hawaii, USA. Homepage: https://icml.cc/Conferences/2023 .
July 2023	Program Committee Member, <i>IEEE 2023 Congress on Evolutionary Computation</i> , IEEE CEC 2023, Chicago, IL, USA. Homepage: https://2023.ieee-cec.org .
April 2023	Program Committee Member, <i>59th ACM Southeast Conference</i> , ACMSE 2023, Virtual (Richmond, KY), USA. Homepage: https://acmse.net/2023/ .
February 2023	Program Committee Member, <i>37th AAAI Conference on Artificial Intelligence</i> , AAAI 2023, Washington, DC, USA. Homepage: https://aaai.org/Conferences/AAAI-23/ .
December 2022	Program Committee Member, <i>36th Conference on Neural Information Processing Systems</i> , NeurIPS 2022, New Orleans, LA, USA. Homepage: https://neurips.cc/Conferences/2022 .
September 2022	Program Committee Member, <i>CMD-IT/ACM Richard Tapia Celebration of Diversity in Computing Conference</i> , TAPIA 2022, Washington, DC, USA. Homepage: https://tapiaconference.cmd-it.org .
July 2022	Program Committee Member, <i>39th International Conference on Machine Learning</i> , ICML 2022, Baltimore, MD, USA. Homepage: https://icml.cc/Conferences/2022 .
July 2022	Program Committee Member, <i>IEEE World Congress on Computational Intelligence</i> , IEEE WCCI 2022, Padua, Italy. Homepage: https://wcci2022.org .

May 2022	Program Committee Member, <i>21st International Conference on Autonomous Agents and Multiagent Systems</i> , AAMAS 2022, Auckland, New Zealand. Homepage: https://aamas2022-conference.auckland.ac.nz .
April 2022	Program Committee Member, <i>58th ACM Southeast Conference</i> , ACMSE 2022, Oxford, AL, USA. Homepage: https://acmse.net/2022/ .
February 2022	Program Committee Member, <i>36th AAAI Conference on Artificial Intelligence</i> , AAAI 2022, Vancouver, BC, Canada. Homepage: https://aaai.org/Conferences/AAAI-22/ .
January 2022	Webmaster, Publications, and Publicity Chair, <i>17th International Symposium on Artificial Intelligence and Mathematics</i> , ISAIM 2022, Virtual (Fort Lauderdale, FL, USA). Homepage: https://isaim2022.cs.ou.edu .
December 2021	Program Committee Member, <i>35th Conference on Neural Information Processing Systems</i> , NeurIPS 2021, Virtual. Homepage: https://neurips.cc/Conferences/2021 .
July 2021	Program Committee Member, <i>38th International Conference on Machine Learning</i> , ICML 2021, Virtual. Homepage: https://icml.cc/Conferences/2021 .
May 2021	Program Committee Member, <i>20th International Conference on Autonomous Agents and Multiagent Systems</i> , AAMAS 2021, Virtual. Homepage: https://aamas2021.soton.ac.uk .
April 2021	Program Committee Member, <i>57th ACM Southeast Conference</i> , ACMSE 2021, Virtual. Homepage: https://acmse.net/2021/ .
February 2021	Program Committee Member, <i>35th AAAI Conference on Artificial Intelligence</i> , AAAI 2021, Virtual. Homepage: https://aaai.org/Conferences/AAAI-21/ .
December 2020	Program Committee Member, <i>34th Conference on Neural Information Processing Systems</i> , NeurIPS 2020, Virtual. Homepage: https://neurips.cc/Conferences/2020 .
Fall 2020	Organizing Committee Member, <i>3rd Symposium on Artificial Intelligence and Machine Learning at the University of Oklahoma</i> , Norman, Oklahoma, USA. Homepage: https://www.ou.edu/coe/ai-ml .
July 2020	Program Committee Member, <i>37th International Conference on Machine Learning</i> , ICML 2020, Virtual. Homepage: https://icml.cc/Conferences/2020 .
January 2020	Webmaster, Publications, Publicity Chair, and Program Committee Member, <i>16th International Symposium on Artificial Intelligence and Mathematics</i> , ISAIM 2020, Fort Lauderdale, FL, USA. Homepage: https://isaim2020.cs.ou.edu .
December 2019	Program Committee Member, <i>33rd Conference on Neural Information Processing Systems</i> , NeurIPS 2019, Vancouver, Canada. Homepage: https://neurips.cc/Conferences/2019 .
September 2019	Organizing Committee Member, <i>2nd Symposium on Artificial Intelligence and Machine Learning at the University of Oklahoma</i> , Norman, Oklahoma, USA. Homepage: http://www.ou.edu/coe/ai-ml/past_meetings/ai-ml .
August 2019	Program Committee Member, <i>28th International Joint Conference on Artificial Intelligence</i> , IJCAI-19, Macao, China. Homepage: https://www.ijcai19.org/program-committee.html .
February 2018	Program Committee Member, <i>32nd AAAI Conference on Artificial Intelligence</i> , AAAI 2018, New Orleans, Louisiana, USA. Homepage: https://aaai.org/Conferences/AAAI/aaai18.php .
January 2018	Webmaster, Publications, Publicity Chair, and Program Committee Member, <i>15th International Symposium on Artificial Intelligence and Mathematics</i> , ISAIM 2018, Fort Lauderdale, FL, USA. Homepage: https://isaim2018.cs.ou.edu .

August 2017	Program Committee Member, <i>26th International Joint Conference on Artificial Intelligence</i> , IJCAI-17, Melbourne, Australia. Homepage: https://ijcai-17.org/program-committee.html .
July 2016	Program Committee Member, <i>25th International Joint Conference on Artificial Intelligence</i> , IJCAI-16, New York City, NY, USA. Homepage: https://ijcai-16.org/index.php/welcome/view/program_committee .
January 2016	Webmaster, Publications, Publicity Chair, and Program Committee Member, <i>14th International Symposium on Artificial Intelligence and Mathematics</i> , ISAIM 2016, Fort Lauderdale, FL, USA. Homepage: https://isaim2016.cs.ou.edu .
2013 – 2015	Core member and seminar organizer of the Agents Group, Centre for Intelligent Systems and their Applications, School of Informatics, The University of Edinburgh. Homepage: https://groups.inf.ed.ac.uk/agents .
January 2014	Webmaster and Publicity Co-Chair, <i>13th International Symposium on Artificial Intelligence and Mathematics</i> , ISAIM 2014, Fort Lauderdale, FL, USA. Homepage: https://www.cs.uic.edu/Isaim2014 .
January 2012	Webmaster and Publicity Chair, <i>12th International Symposium on Artificial Intelligence and Mathematics</i> , ISAIM 2012, Fort Lauderdale, FL, USA. Homepage: https://www.cs.uic.edu/Isaim2012 .
February 2010	Webmaster, <i>Workshop in Graph Theory and Combinatorics in Memory of Uri Peled</i> , University of Illinois at Chicago, Chicago, IL, USA. Homepage: https://www.math.uic.edu/PeledWorkshop .
September 2004	Member of the International Scientific Committee (ISC) at the <i>International Olympiad in Informatics</i> , IOI-2004, Athens, Attiki, Hellas. Homepage: https://www.epy.gr/ioi2004 .
Regular Reviewer	Transactions of Machine Learning Research (TMLR), Feb 2022 – now.
Invited Reviewer	SODA, AAI, ICALP, IJCAI, ICDE, ISAIM, AAMAS, ALENEX, CASC.

EDITORIAL WORK

- **Managing Associate Editor**

- *Annals of Mathematics and Artificial Intelligence (AMAI)*, 2024.

- **Associate Editor**

- *Annals of Mathematics and Artificial Intelligence (AMAI)*, 2022-now.

- **Guest Editor**

- Special issue of *Annals of Mathematics and Artificial Intelligence (AMAI)* devoted to selected papers from the *Fifteenth International Symposium on Artificial Intelligence and Mathematics*, ISAIM 2018.

SERVICE AT THE UNIVERSITY OF OKLAHOMA

ACM Student Chapter

- Faculty advisor of the Student Chapter of the ACM (Association for Computing Machinery) at the University of Oklahoma. **(2022 Fall - now)**

OU AI/ML Club

- Faculty advisor of the OU AI/ML Club at the University of Oklahoma. **(2023 Spring - now)**

Hiring Committees

- School of Computer Science, Committee Leader (Hybrid Modeling). **(2023 Fall - 2024 Spring)**
- Department of Mathematics, External Member. **(2022 Fall - 2023 Spring)**

- School of Meteorology, External Member. (2022 Fall - 2023 Spring)

Research Committee

- Member of the research committee. (2022 Fall - 2024 Spring)
- Research seminar organizer. (2023 Fall)

DSA PhD Application Review Committee

- Member of the DSA PhD Application Review committee. (2023 Spring - 2024 Summer)
 - Chair of the DSA PhD Application Review committee. (2024 Summer - now)
- Member of the DSA Curriculum Committee. (2025 Spring - now)

Graduate Studies Committee

- Member of the graduate studies committee. (2023 Fall - now)
- Major revamping of the graduate studies program. (2023 Fall - now)

Computer Science Community Committee

- Member of the CS community committee. (2023 Fall - now)
- Leading the committee. (2023 Fall - now)

Student Engagement Committee

- Member of the student engagement committee. (2020 Fall - 2022 Fall)

Graduate Recruitment Committee

- Member of the graduate recruitment committee. (2019 Fall - 2020 Spring)

PUBLICATIONS

A copy of my papers is available at <https://www.diochnos.com/research/publications>.

- Amy McGovern, Imme Ebert-Uphoff, Elizabeth A. Barnes, Ann Bostrom, Mariana G. Cains, Phillip Davis, Julie L. Demuth, Dimitrios I. Diochnos, Andrew H. Fagg, Philippe Tissot, John K. Williams, Christopher D. Wirz. AI2ES: The NSF AI Institute for Research on Trustworthy AI for Weather, Climate, and Coastal Oceanography. *AI Magazine*, 2024.
- Dimitrios I. Diochnos, Martin Charles Golumbic, Frederick Hoffman. ISAIM-2022: international symposium on artificial intelligence and mathematics. *Annals of Mathematics and Artificial Intelligence*, 92(1): 1-4 (2024)
- Jose E. Aguilar Escamilla and Dimitrios I. Diochnos. Perceptrons Under Verifiable Random Data Corruption. *Ninth International Conference on Machine Learning, Optimization, and Data Science (LOD)*, 2023, LOD'23: 93-103.
- Abinash Borah, Dimitrios I. Diochnos, Le Gruenwald, Elaheh Jafarigol, Egawati Panjei, Theodore B. Trafalis. Research Issues in Adversarially Robust Stream-Based Federated Learning. *Fifth International Conference on Optimization and Learning (OLA)*, 2022, OLA'22: 83-85.
- Pantia-Marina Alchirch, Dimitrios I. Diochnos, Katia Papakonstantinou. Evolving Monotone Conjunctions in Regimes Beyond Proved Convergence. *Twenty-Fifth European Conference on Genetic Programming (EuroGP)*, 2022, EuroGP 2022: 228-244.
- Conner Flansburg and Dimitrios I. Diochnos. Wind Prediction under Random Data Corruption (Student Abstract), *Thirty-Sixth AAAI Conference on Artificial Intelligence (AAAI)*, in the Student Abstract and Poster program, 2022, AAAI 2022: 12945-12946.

22. Dimitrios I. Diochnos. On the Evolvability of Monotone Conjunctions with an Evolutionary Mutation Mechanism. *Journal of Artificial Intelligence Research*, 70: 891-921 (2021).
The paper was also invited and presented to the Journal track of the *Thirtieth International Joint Conference on Artificial Intelligence (IJCAI-21)*.
Furthermore, a preliminary version was also presented in the *Fifteenth International Symposium on Artificial Intelligence and Mathematics (ISAIM)*, Fort Lauderdale, Florida, USA, 2018.
21. Dimitrios I. Diochnos and Theodore B. Trafalis. Learning Reliable Rules under Class Imbalance. *Twenty-First SIAM International Conference on Data Mining (SDM)*, SDM21: 28-36.
20. Dimitrios I. Diochnos, Saeed Mahloujifar, Mohammad Mahmoody. Lower Bounds for Adversarially Robust PAC Learning. *Nineteenth IEEE International Conference on Machine Learning and Applications (ICMLA)*, Virtual, 2020.
A preliminary version was also presented in the *Sixteenth International Symposium on Artificial Intelligence and Mathematics (ISAIM)*, Fort Lauderdale, Florida, USA, 2020.
19. Vanda Balogh, Gábor Berend, Dimitrios I. Diochnos, György Turán. Understanding the Semantic Content of Sparse Word Embeddings Using a Commonsense Knowledge Base, *Thirty-Fourth AAAI Conference on Artificial Intelligence (AAAI)*, New York, NY, USA, 2020.
Also a poster presentation in *NeurIPS 2019 Workshop on Knowledge Representation & Reasoning Meets Machine Learning (KR2ML)*, Vancouver, Canada, 2019.
18. Dimitrios I. Diochnos, Jürgen Dix, Guillermo Ricardo Simari. Foreword to special issue for ISAIM 2018. *Annals of Mathematics and Artificial Intelligence*, 88(7): 687-689, 2020.
17. Saeed Mahloujifar, Dimitrios I. Diochnos, Mohammad Mahmoody. Learning under p-tampering poisoning attacks, *Annals of Mathematics and Artificial Intelligence*, 88(7): 759-792, 2020.
16. Saeed Mahloujifar, Dimitrios I. Diochnos, Mohammad Mahmoody. Curse of Concentration in Robust Learning: Evasion and Poisoning Attacks from Concentration of Measure. *Thirty-Third AAAI Conference on Artificial Intelligence (AAAI)*, Honolulu, Hawaii, USA, 2019.
Also a poster presentation in *NeurIPS 2018 Workshop on Security in Machine Learning*, Montréal, Canada, 2018.
15. Interpretability of Hungarian embedding spaces using a knowledge base, Vanda Balogh, Gábor Berend, Dimitrios I. Diochnos, György Turán, and Richárd Farkas, *Fifteenth Conference on Hungarian Computational Linguistics (MSZNY)*, Szeged, Hungary, 2019.
14. Dimitrios I. Diochnos, Saeed Mahloujifar, Mohammad Mahmoody. Adversarial Risk and Robustness: General Definitions and Implications for the Uniform Distribution, *Thirty-Second Conference on Neural Information Processing Systems (NeurIPS)*, Montréal, Canada, 2018.
13. Saeed Mahloujifar, Dimitrios I. Diochnos, Mohammad Mahmoody. Learning under p-Tampering Attacks, *Twenty-Ninth International Conference on Algorithmic Learning Theory (ALT)*, Lanzarote, Spain, 2018.
A preliminary version was also presented in the *Fifteenth International Symposium on Artificial Intelligence and Mathematics (ISAIM)*, Fort Lauderdale, Florida, USA, 2018.
12. Michael Rovatsos, Dimitrios I. Diochnos, Zhenyu Wen, Sofia Ceppi, Pavlos Andreadis. SmartOrch: An Adaptive Orchestration System for Human-Machine Collectives, *Thirty-Second ACM Symposium on Applied Computing (SAC 2017)*, Marrakesh, Morocco, 2017.
11. Dimitrios I. Diochnos. On the Evolution of Monotone Conjunctions: Drilling for Best Approximations, *Twenty-Seventh International Conference on Algorithmic Learning Theory (ALT 2016)*, Bari, Italy, ALT 2016: 98–112, 2016.
10. Ognjen Šćekić, Tommaso Schiavinotto, Dimitrios I. Diochnos, Michael Rovatsos, Hong-Linh Truong, Iacopo Carreras, Shahram Dustdar. Programming Model Elements for Hybrid Collaborative Adaptive Systems, *First IEEE International Conference on Collaboration and Internet Computing (CIC 2015)*, Hangzhou, China, CIC 2015: 278–287, 2015.

9. Ognjen Šćekić, Daniele Miorandi, Tommaso Schiavinotto, Dimitrios I. Diochnos, Alethia Hume, Hong-Linh Truong, Michael Rovatsos, Schahram Dustdar, Fausto Giunchiglia. SmartSociety – A Platform for Collaborative People-Machine Computation, *Eighth IEEE International Conference on Service Oriented Computing & Applications (SOCA 2015)*, Rome, Italy, SOCA 2015: 147–154, 2015.
8. Michael Rovatsos, Dimitrios I. Diochnos, Matei Craciun. Agent Protocols for Social Computation, *Second International Workshop on Multiagent Foundations of Social Computing (MFSC)*, co-located with AAMAS 2015, Istanbul, Turkey, CARE/MFSC@AAMAS 2015: 94–111, 2015.
7. Tanya Berger-Wolf, Dimitrios I. Diochnos, András London, András Pluhár, Robert H. Sloan, György Turán. Commonsense knowledge bases and network analysis, *11th International Symposium on Logical Formalizations of Commonsense Reasoning*, Ayia Napa, Cyprus, 2013.
6. Dimitrios I. Diochnos, Robert H. Sloan, György Turán. On multiple-instance learning of halfspaces, *Information Processing Letters*, 112(23): 933–936, 2012.
5. Dimitrios I. Diochnos. Leveling-Up in Heroes of Might and Magic III, *Fifth International Conference on Fun with Algorithms (FUN 2010)*, Ischia Island, Italy, FUN 2010: 145–155, 2010.
4. Dimitrios I. Diochnos and György Turán. On Evolvability: The Swapping Algorithm, Product Distributions, and Covariance, *Fifth Symposium on Stochastic Algorithms, Foundations and Applications (SAGA 2009)*, Sapporo, Japan, SAGA 2009: 74–88, 2009.
3. Dimitrios I. Diochnos, Ioannis Z. Emiris, Elias P. Tsigaridas. On the asymptotic and practical complexity of solving bivariate systems over the reals, *Journal of Symbolic Computation*, 44(7): 818–835, 2009. Also available at <https://arxiv.org/abs/1203.1017>.
2. Δημήτρης Διώχνος. Επίλυση Αλγεβρικών Συστημάτων Μικρής Διάστασης στους Πραγματικούς, *Ετήσιο Βιβλίο με Επιλεγμένες Πτυχιακές και Διπλωματικές Εργασίες*, Τμήμα Πληροφορικής και Τηλεπικοινωνιών, Εθνικό και Καποδιστριακό Πανεπιστήμιο Αθηνών, Ελλάδα, 5: 23–32, 2008. Dimitris Diochnos. Solving Algebraic Systems of Small Dimension over the Reals, *Annual Book of Selected Undergraduate and Graduate Theses*, Department of Informatics and Telecommunications, National and Kapodistrian University of Athens, Hellas, 5: 23–32, 2008.
1. Dimitrios I. Diochnos, Ioannis Z. Emiris, Elias P. Tsigaridas. On the Complexity of Real Solving Bivariate Systems, *Proceedings Annual ACM International Symposium on Symbolic and Algebraic Computation (ISSAC)*, Waterloo, Canada, ISSAC 2007: 127–134, 2007.

PREPRINTS

2. Patrick Kage, Jay C. Rothenberger, Pavlos Andreadis, Dimitrios I. Diochnos. A Review of Pseudo-Labeling for Computer Vision. arXiv: <https://arxiv.org/abs/2408.07221>.
1. Jay C. Rothenberger and Dimitrios I. Diochnos. Meta Co-Training: Two Views are Better than One. arXiv: <https://arxiv.org/abs/2311.18083>.

THESES

A copy of my theses is available at <https://www.diochnos.com/research/theses>.

PhD Thesis. Analysis of Algorithms in Learning Theory and Network Analysis of Knowledge Bases. University of Illinois at Chicago, Chicago, IL, USA, July, 2013. Advisor: György Turán.

Master’s Thesis. Real Solving on Algebraic Systems of Small Dimension. National and Kapodistrian University of Athens, Athens, Hellas, June, 2007. Advisor: Ioannis Z. Emiris.

Undergraduate Thesis. Application of Reinforcement Learning and Combinatorial Search to One-Player Games. National and Kapodistrian University of Athens, Athens, Hellas, February, 2004. Advisor: Panagiotis Stam-topoulos.

WORKSHOP PAPERS (NOT DEVELOPED IN FULL PAPERS YET)

2. Jay C. Rothenberger, Tiffany Le, Carly Sutter, Kara J. Sulia, Dimitrios I. Diochnos. Improving Road Surface Classification with Co-Training Algorithms. To be presented in *105th Annual Meeting of the American Meteorological Society*, New Orleans, LA, Jan 15, 2025.
Abstract: <https://ams.confex.com/ams/105ANNUAL/meetingapp.cgi/Paper/451835>.
1. Vincent A. Ferrera, Jay C. Rothenberger, Melissa Wilson Reyes, Carly Sutter, Andrew H. Fagg, Dimitrios I. Diochnos. Classifying Road Surface Conditions with Self-Trained Artificial Intelligence. Presented in *103rd Annual Meeting of the American Meteorological Society*, Denver, CO, Jan 12, 2023.
Abstract: <https://ams.confex.com/ams/103ANNUAL/meetingapp.cgi/Paper/411860>.
Also presented in *2nd Annual NYS Mesonet Symposium*, Albany, NY, Sep 13, 2022.

TECHNICAL REPORTS

A copy of the following is available at https://www.diochnos.com/research/tech_reports.

1. Dimitrios I. Diochnos. Commonsense Reasoning and Large Network Analysis: A Computational Study of ConceptNet 4, *arXiv:1304.5863 [cs.AI]*.

SURVEYS, TUTORIALS & OTHER ARTICLES

Online pointers are under my homepage <https://www.diochnos.com>.

4. Dimitrios I. Diochnos. Essentials on the Analysis of Randomized Algorithms, February 2009.
Online: </research/other/randomized/essentials.pdf>.
3. Dimitrios I. Diochnos. A Brief Introduction to Search Problems, March 2008.
Online: /research/other/ai/intro_search.pdf.
2. Dimitrios I. Diochnos. An Introduction to the Terminal, January, 2008. A tutorial for the UNIX terminal; referenced each semester by the course *MCS 260 - Introduction to Computer Science* taught at the Mathematics department of UIC. Online: </tips/terminal>.
1. Dimitrios I. Diochnos and Ioannis Z. Emiris. Enumerating Hurdles, problem in *IOI-2004*, September 2004.
Online: </research/other/ioi2004/hurdles.pdf>.

NEWS AND OTHER MEDIA COVERAGE

DISCoverings Spotlight (Jan 31, 2023): My profile appears in the DISCoverings Spotlight this month. Please see <https://t.co/CbKRQkdC7b>.

College of Engineering, OU (Mar 15, 2022): Work with undergraduate leading to a paper in a top AI conference: <https://oucoe100.blogspot.com/2022/03/ou-school-of-computer-science.html?spref=tw>. Also mentioned on Facebook: <https://www.facebook.com/ENGINEERINGatOU/posts/7988445121181672> and [LinkedIn](#).

AGU TV (Dec 9, 2021): NSF AI Institute for Research on Trustworthy AI in Weather, Climate and Coastal Oceanography (AI2ES) <https://www.youtube.com/watch?v=U1HdKd2MURg>

TALKS, TUTORIALS, POSTER SESSIONS & OTHER PRESENTATIONS

- Meta Co-Training: Two Views are Better than One. *AMS Special Session on 35th Anniversary of AI and Math*, Joint Mathematics Meetings, Seattle, WA, January 8, 2025. Website: https://jointmathematicsmeetings.org/meetings/national/jmm2025/2314_program_ss1.html
- An Overview of Machine Learning. Contributed talk in *Hacklahoma 2024*, University of Oklahoma, Norman, OK, February 10, 2024. Website: <https://2024.hacklahoma.org>
- Evolving Monotone Conjunctions in Regimes Beyond Proved Convergence. Invited talk to the *Seminar of the Laboratory for Algorithms and Technologies for Network Analysis (LATNA)*, Higher School of Economics (HSE), Nizhny Novgorod (Virtual), Russia, April 12, 2023.

- An Overview of Machine Learning. Contributed talk in *Hacklahoma 2023*, University of Oklahoma, Norman, OK, April 1, 2023. Website: <https://2023.hacklahoma.org>
- Research Issues in Adversarially Robust Stream-Based Federated Learning. *Fifth International Conference on Optimization and Learning (OLA)*, Syracuse, Sicily, Italy, July 18, 2022.
- Learning Reliable Rules under Class Imbalance. Invited talk to the *Data Scholarship Program (DSP)* at the University of Oklahoma, Norman, OK, May 5, 2022.
- On the Evolvability of Monotone Conjunctions with an Evolutionary Mutation Mechanism. Invited talk to the *Journal Track of the 30th International Joint Conference on Artificial Intelligence (IJCAI-21)*, Virtual (Montréal, Québec, Canada), August 23 & 26, 2021.
- Robustness in Machine Learning – A Computer Science Perspective. Invited talk to the *Trustworthy Artificial Intelligence for Environmental Science (TAI4ES) Virtual Summer School*, Virtual, July 27, 2021.
- Learning Reliable Rules under Class Imbalance. *2021 SIAM International Conference on Data Mining (SDM)*, Virtual (Alexandria, VA, USA), April 29, 2021.
- Learning Reliable Rules under Class Imbalance. Invited talk to the *Seminar of the Laboratory for Algorithms and Technologies for Network Analysis (LATNA)*, Higher School of Economics (HSE), Nizhny Novgorod (Virtual), Russia, April 21, 2021.
- Elements of Computational Learning Theory. Invited talk to the graduate-level course *Algorithms: Design and Analysis*, Athens University of Economics and Business, January 11, 2021.
- Lower Bounds for Adversarially Robust PAC Learning. *19th IEEE International Conference on Machine Learning and Applications (ICMLA 2020)*, Virtual, December 14-17, 2020.
- Lower Bounds for Adversarially Robust PAC Learning. *16th International Symposium on Artificial Intelligence and Mathematics (ISAIM 2020)*, Fort Lauderdale, FL, USA, January 6-8, 2020.
- Lower Bounds for Adversarially Robust PAC Learning. *NeurIPS 2019 Workshop on Safety and Robustness in Decision Making*, Vancouver, Canada, December 13, 2019.
- Understanding the Semantic Content of Sparse Word Embeddings Using a Commonsense Knowledge Base. *NeurIPS 2019 Workshop on Knowledge Representation & Reasoning Meets Machine Learning (KR2ML)*, Vancouver, Canada, December 13, 2019.
- Aspects of Robustness in Machine Learning and Data Mining – Brainstorming Panel. *2nd Symposium on Artificial Intelligence and Machine Learning at the University of Oklahoma*, Norman, OK, September 27, 2019.
- On Adversarial Examples and Misclassification. *2nd Symposium on Artificial Intelligence and Machine Learning at the University of Oklahoma*, Norman, OK, September 27, 2019.
- Adversarial Risk and Robustness: General Definitions and Implications for the Uniform Distribution. *32nd Conference on Neural Information Processing Systems (NeurIPS)*, Montréal, Canada, December 5, 2018.
- On the evolution of monotone conjunctions: drilling for best approximations. *Theoretical Computer Science Seminar*, University of Illinois at Chicago, Chicago, IL, USA, March 7, 2017.
- On the Evolution of Monotone Conjunctions: Drilling for Best Approximations. *37th International Conference in Algorithmic Learning Theory (ALT 2016)*, Bari, Italy, October 19, 2016.
- Drilling for Best Approximations in Evolution. *Postdoctoral Research Symposium*, Charlottesville, VA, USA, September 20, 2016.
- SmartSociety. *SICSA DEMOFest 14*, Edinburgh, UK, October 30, 2014.
- SmartSociety. *SICSA DEMOFest 13*, Glasgow, UK, November 5, 2013.
- Commonsense Knowledge Bases and Network Analysis. *Commonsense*, Ayia Napa, Cyprus, May 27, 2013.

- On Multiple-Instance Learning of Halfspaces. *X-Theory Day*, National and Kapodistrian University of Athens, Athens, Hellas, December 19, 2011.
- Evolvability in Learning Theory. Eötvös Loránd University, Budapest, Hungary, November 23, 2011.
- Evolvability in Learning Theory. University of Szeged, Szeged, Hungary, November 16, 2011.
- On Evolvability: The Swapping Algorithm, Product Distributions, and Covariance. *Algorithms Seminar*, National and Kapodistrian University of Athens, Athens, Hellas, December 23, 2010.
- Leveling-Up in Heroes of Might and Magic III. *Fifth International Conference on Fun with Algorithms (FUN 2010)*, Ischia Island, Italy, June 3, 2010.
- On Evolvability: The Swapping Algorithm, Product Distributions, and Covariance. *11th International Symposium on Artificial Intelligence and Mathematics (ISAIM 2010)*, Fort Lauderdale, FL, USA, January 7, 2010.
- On Evolvability: The Swapping Algorithm, Product Distributions, and Covariance. *Midwest Theory Day, Fall 2009*, DePaul University, Chicago, IL, USA, December 5, 2009.
- On Evolvability: The Swapping Algorithm, Product Distributions, and Covariance. *5th Symposium on Stochastic Algorithms, Foundations and Applications (SAGA 2009)*, Hokkaido University, Sapporo, Japan, October 27, 2009.
- Implementation and Experiments on Real Solving of Bivariate Systems. *ACS Workshop*, Freie Universität, Berlin, Germany, May 9, 2007.

TEACHING

OU. I have taught the following courses at the University of Oklahoma.

- *CS 3440 - Mentored Research Experience*, undergraduate course, Spring 2024 (Tiffany Le), Fall 2025 (Teddy Diallo; 2×).
- *CS 3823 - Theory of Computation*, undergraduate course, Fall 2019, Fall 2022, Fall 2023, Fall 2024.
- *CS 3980 - Honors Research*, undergraduate independent study leading to a thesis, Spring 2022 (Caleb Lagge), Fall 2023 (Tyson Harris), Spring 2023 (Erin Sullivan).
- *CS 3990 - Independent Study*, undergraduate course, Fall 2020 (Conner Flansburg).
- *CS 4033/5033 - Machine Learning Fundamentals*, course cross-listed for undergraduate and graduate students, Fall 2020, Spring 2022, Spring 2023, Spring 2024.
- *CS 5033 - Machine Learning Fundamentals (Online Program)*, course offered in the asynchronous online Master's program, Spring 2022, Spring 2023, Spring 2024.
- *CS 5970 - Computational Learning Theory*, graduate course, Fall 2020, Fall 2021, Fall 2022, Fall 2023, Fall 2024.
- *CS 5990 - Independent Study*, graduate course, Summer 2022 (Gabriela Fisher), Spring 2023 (Gabriela Fisher, Arjun Ganesan), Spring 2024 (Alberto Liu), Fall 2024 (Kevin Tran).

UVA. As a Hobby postdoctoral research associate at the University of Virginia I taught the following courses.

- *CS3102 - Theory of Computation*, undergraduate course, Fall 2018.
- *CS4710 - Artificial Intelligence*, undergraduate course, Spring 2016, Fall 2016, Fall 2017.
- *CS6501 - Learning Theory*, graduate course, Fall 2015, Spring 2017, Spring 2018, Spring 2019.

UIC. As a TA at the University of Illinois at Chicago (2007-2013) I maintained a webpage for every course that I taught together with separate notes prepared by me for each class. Throughout the years I taught the following courses.

- *MCS 260 - Introduction to Computer Science*,
- *MCS 275 - Programming Tools and File Management*,
- *MCS 360 - Introduction to Data Structures*,
- *MCS 401 - Computer Algorithms I*,
- *MATH 118 - Mathematical Reasoning*,

- *MATH 160 - Finite Mathematics for Business,*
- *MATH 210 - Calculus III.*

Reviews by students are available upon request.

Othisi. In 2000 I worked at Othisi as a Computer Science teacher for the course *Developing Applications in a Programming Environment.*

STUDENT ADVISING (THESIS ADVISOR OR EQUIVALENT)

OU, PhD. The following PhD students at the University of Oklahoma.

- Pantia-Marina Alchirch, Graduate Student in Computer Science, 2022-now.
- Will Keely, Graduate Student in Data Science and Analytics (DSA), 2021-now.
- Jay Rothenberger, Graduate Student in Computer Science, 2021-now.
- Naeem Shahabi-Sani, Graduate Student in Computer Science, 2021-2024. Did not graduate. Working under a different advisor.

OU, Master's. The following PhD students at the University of Oklahoma.

- Luis E. Vazquez, Graduate Student in Computer Science (Master's; thesis track), 2023-now.
- Alberto Liu, Graduate Student in Computer Science (Master's; coursework-only track), 2024.
- Gabriela N. Fisher, Graduate Student in Computer Science (Master's; project-based track), 2023.
- Arjun Ganesan, Graduate Student in Computer Science (Master's; project-based track), 2023.

OU, Undergraduates. The following undergraduate students at the University of Oklahoma.

- Teddy Diallo, Mentored Research Experience (x2), 2024 Fall. Also Undergraduate Research Assistant in a project working with Dr. Katerina Kyprioti (Civil Engineering), 2024-2025.
- Erencem Özbey, Mentored Research Experience, 2024 Fall.
- Luke Terry, Undergraduate Research Assistant for AI2ES, 2024-2025.
- Tiffany Le, Undergraduate Research Assistant for AI2ES, 2023-2024.
- Erin Sullivan, Honors Thesis, 2023 Jan-May.
- Tyson Harris, Honors Thesis, 2022 Aug-Dec.
- Alberto Liu, Undergraduate Research Assistant for AI2ES, 2022-2023.
- Vincent Ferrera, AI2ES REU Student, Summer 2022. Co-advised with my PhD student Jay Rothenberger.
- Jose E. Aguilar Escamilla, McNair Scholar, 2021-2022.
- Caleb Lagge, Undergraduate Research Assistant, Honors Thesis, 2021-2022.
- Conner Flansburg, Undergraduate Research Assistant for AI2ES, 2020-2021.

AUEB, Undergraduates. The following undergraduate students at the Athens University of Economics and Business (Athens, Greece).

- Pantia-Marina Alchirch, Undergraduate Thesis, 2020-2021. Co-advised with Dr Katia Papakonstantinou.

UVA, Undergraduates. The following undergraduate students at the University of Virginia.

- Nicholas Georgiou, Undergraduate Capstone Project, 2017-2018.
- Alyson Irizarry, Undergraduate Capstone Project, 2017-2018.
- Andrew Lee, Undergraduate Capstone Project, 2017-2018.
- Ceyer Wakilpoor, Undergraduate Capstone Project, 2017-2018.

COMMITTEE MEMBER IN STUDENT THESES (NOT AS ADVISOR)

OU, PhD. The following PhD students at the University of Oklahoma.

- Airi Shimamura (PhD, ISE, 2025-now, advisor: Talayeh Razzaghi)
- Luke Dechow (PhD, Mathematics, 2025, advisor: Justin Malestein)
- Sam Bird (PhD, Computer Science, 2025-now, advisor: Le Gruenwald)
- Andrew Justin (PhD, Meteorology, 2024-now, advisor: Amy McGovern)
- Travis Casey (PhD, Mathematics, 2024-now, advisor: Miro Kramar)
- Catherine Donner (PhD, DSA, 2024-now, advisor: Anindya Maiti)
- Braden Roper (PhD, CS, 2024-now, Chris Weaver)
- Anvesh Nathani (PhD, Mechanical Engineering, 2024-now, advisor: Iman Ghamarian)
- Maisha Maliha (PhD, CS, 2024-now, advisor: Dean Hougen; earlier: Golnaz Habibi)
- Shane S. Elliott (PhD, CS, 2024-now, advisor: Chris Weaver)
- Khoi Trinh (PhD, DSA, 2024-now, advisor: Anindya Maiti)
- Zak A. Kastl (PhD, DISC, 2023-now, advisor: David Ebert)
- Vishnu Kadiyala (PhD, CS, 2023-now, advisor: Andrew Fagg)
- Jason Papayik (PhD, ISE, 2023-now, advisor: Theodore Trafalis)
- Vikash Prasad (PhD ABD, CS, 2022-2024, advisor: Ji Hwan Park)
- Brian Carlton (PhD, CS, 2022-now, advisor: Justin Metcalf)
- Justin C. Reynolds (PhD, CS, 2022-now, advisor: Chongle Pan)
- Lena Trigg (PhD, CS, 2022-now, advisor: Dean Hougen)
- Yunlong Liu (PhD, CS, 2022-now, advisor: Chongle Pan)
- Brandon Morgan (PhD, CS, 2022-2024, advisor: Dean Hougen)
- Philip Bretz (PhD, Math, 2023, advisor: Miro Kramar)
- Saurabh Patil (PhD, Meteorology, 2022-now, advisor: Greg McFarquhar)
- Ahmad Tashfeen (PhD, CS, 2022-now, advisor: Qi Cheng)
- Geoffrey Dolinger (PhD, ECE, 2022-now, advisor: Justin Metcalf)
- Lex Beattie (PhD, DSA, 2023, advisor: Dean Hougen)
- Elaheh Jafarigol (PhD, ISE, 2023, advisor: Theodore Trafalis)
- Yiting Cao (PhD, CS, 2023, advisor: Chao Lan)
- Beth Earnest (PhD, CS, 2020-2024, advisor: Amy McGovern)
- Nathan Jones (PhD, Math, 2020-now, advisor: Miro Kramar)
- Jalal Saidi (PhD, CS, 2020-now, advisor: Dean Hougen)

OU, MSc. The following graduate students at the University of Oklahoma.

- Michael Quaynor (MSc, DSA, 2024-now, advisor: Kasun Gunasooriya)
- Mel Wilson Reyes (MSc, CS, 2022-2023, advisor: Andrew Fagg)
- Jacob Sturges (MSc, DSA, 2022-now, advisor: Dean Hougen)
- Francis Oyebanji (MSc, CS, 2022, advisor: Dean Hougen)
- Jose Aguilar (MSc, CS, 2022-2023, advisor: Dean Hougen)
- Sinaro Ly (MSc, CS, 2023, advisor: Chongle Pan)
- Dang Bibi (MSc, ECE, 2022, advisor: Justin Metcalf)
- Morgan Brandon (MSc, CS, 2022, advisor: Dean Hougen)
- Francis F. Oyebanji (MSc, CS, 2022, advisor: Dean Hougen)
- MG Hirsch (MSc, CS, 2020, advisor: Dean Hougen)

SOFTWARE

Apart from Smart Sharing, the following programs are freely available through my website under the Software section or you can find links that will lead you to the source code and the executable.

Smart Sharing (2013-2015). Smart Sharing is a web application allowing registered users to offer or request rides between different locations. Smart Sharing goes beyond current approaches in car-pooling in that users have reputation, it generates matches between users taking their personal preferences into account, allows negotiation between users for booking rides, takes care of the entire synchronisation that is needed on the backend so that necessary signals can be automated and sent to the appropriate users (e.g. a commuter is negotiating with two drivers in parallel, and an agreement is reached with one of them), performs versioning of the critical resources, and allows a full trace of provenance for auditing, accountability, and explanation purposes. Orchestration of the platform as well as of the components is performed in an asynchronous, non-blocking manner aimed to cover applications at scale following the latest web standards and technologies. The code on the backend is written in Javascript on node.js using MongoDB for the database. On the client side we use HTML5, Javascript and jQuery. My work provided the peer manager for the platform where users register, authenticate, and have their profiles (about 10K lines of code), together with the orchestration service (about 30K lines of code) that is responsible for the work and synchronisation that is needed on the backend thus allowing the described functionality above. Homepage of the project: <http://www.smart-society-project.eu>.

SLV Maple Library. SLV is a library used in Maple™. The acronym comes from Sturm soLVer. It was developed as part of my master's thesis and solves univariate polynomials or bivariate polynomial systems using Sturm sequences. The solutions are (pairs of) Real Algebraic Numbers in Isolating Interval Representation. Homepage: http://erga.di.uoa.gr/soft/SLV/SLV_index.html. (Master's Thesis)

Optimal Policy in Game Solo. An RL-agent that finds optimal policy in game Solo. The learning process is augmented through combinatorial search techniques. (Undergraduate Thesis)

Heroes of Might and Magic III. Solvers for the general problem of Skill Advancing are hosted in the webpage <https://www.diochnos.com/software/games/homm3>. These solvers also appear in the relevant thread in *Heroes Community* <http://heroescommunity.com/viewthread.php3?TID=17812>.
skills: Evaluation of user's policy based on skill trees and limited randomness, dimis, September 2009. Current version is 2.0 and supports five popular deterministic policies.
internals_mc: Evaluating Policies with Monte Carlo methods in Skill-Selection problem, dimis, July 2007. Current version is 2.0 and supports five popular deterministic policies with the use of the PTHREADS library.
ansa, *ansaExtended*: Solver for ANSA (AR) problem, dimis, April 2006. Source code for *ansa* is also available in GNU Multiprecision Arithmetic Library (GMP). *ansaExtended* was developed in July 2006 in order to answer more interesting questions posed in Disjunctive Normal Form (DNF).

Inversion Distance and Sorting by Reversals. Tools that compute the inversion distance of two genomes as well as perform sorting by reversals between two genomes. Part of the source code was used in IOI-2004.

The Ellipsoid Method. The popular Ellipsoid Method used in Linear Programming, implemented in C.

Database for Undergraduate Courses. This is a program that can be used as a database for undergraduate courses passed at the Department of Informatics and Telecommunications as well as a tool for statistical analysis of the GPA and other departmental parameters which are crucial for graduate applications.

WORKING EXPERIENCE

Operating Systems. Linux, Mac OS X, Solaris Unix, and all Microsoft operating systems.

Programming Languages. All major programming languages including, but not limited to, C, Objective C, C++, Visual Basic, Python, Cython, Pascal, LPA-Prolog, Haskell.

Web Related Technologies. Javascript, node.js, express web application framework for node, jade node template engine, browserify, sockets, RESTful applications, cross-origin resource sharing (CORS), MongoDB¹, MongoDB Management Service (MMS), mongoose, mongoose-version, Apache, HTML 5, jQuery, CSS, PHP.

¹M102: MongoDB for DBAs certificate [available from the MongoDB University](#).

Miscellaneous. Model-View-Controller (MVC), Core Graphics, MapKit, NSURLConnection, PTHREADS, Message Passing Interface (MPI), GNU Multiple Precision Arithmetic Library (GMP), Scalable Parallel Random Number Generators Library (SPRNG), Subversion, Git, SQLite, Oracle SQL Plus, GNUPlot, Maple, igraph, R, T_EX, L^AT_EX, X_YL_AT_EX, shell scripts in Unix / Linux / MS-DOS.

LANGUAGES

Fluent		Greek (native), English
Elementary		German

UPDATED

Last update was performed on February 6, 2025 at 15:14.