

Dimitrios I. Diochnos

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SCIENTIFIC INTERESTS

- Machine Learning • Heuristic Search • PAC Learning • Artificial Intelligence • Computer Science Theory

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 (e.g., NP-hardness). In the absence of formal guarantees, I try to provide sound empirical conclusions.

EDUCATION AND 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.
- 2013 PhD, [Department of Mathematics, Statistics, and Computer Science](#), University of Illinois at Chicago ([UIC](#)), USA. Advisor: György Turán.
- 2007 MSc, in [Logic, Algorithms and Computation](#), [Department of Mathematics](#), National and Kapodistrian University of Athens ([NKUA](#)), Hellas. Advisor: Ioannis Z. Emiris.
- 2004 Ptychion, [Department of Informatics and Telecommunications](#), National and Kapodistrian University of Athens ([NKUA](#)), Hellas. Advisor: Panagiotis Stamatopoulos.

FUNDING

- NSF Award [CNS-2531450](#) *SCC-IRG: TREE-CARE: Treefall Risk Evaluation and Empowerment for Community Assessment and Resilience Enhancement*, Co-PI (PI: Aikaterini Kyprioti, Co-PIs: Heather McCarthy, Andrew Fox, Dimitrios Diochnos, Christopher Malloy), 2020–2025. Total budget: \$1,199,990. DID Credit: \$143,999.
- 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. OU Credit: \$4,000,000. DID Credit: \$400,000.

FELLOWSHIPS & OTHER AWARDS

- Travel OU VPRP Office OU Presidential International Travel Fellowship (Spring 2022, \$938).
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 Awards [NeurIPS 2023](#) Top Reviewers (Reserved Registration Spot)
[NeurIPS 2019](#) Top Reviewers (Reserved Registration Spot)
[IJCAI-16](#) Quality Reviewing (1 Blue Ribbon)
- Teaching Award Fellowships MCS 260 - Introduction to Computer Science, Fall 2009.
UIC Chancellor’s Graduate Research Fellowship, Spring - Summer 2010; \$2,500.
– Renewed for Second and Final Year (Maximum), Spring - Summer 2011; \$2,500.
I fulfilled my studies with fellowship by “Zossima Brothers” foundation; \$3,000.

EXTERNAL EXAMINER IN PHD DISSERTATIONS

- **Pascale Gourdeau**, University of Oxford, United Kingdom, Summer 2023.
Title: *Sample complexity of robust learning against evasion attacks*.
 Advisors: James Worell, Varun Kanade, Marta Kwiatkowska.
 Examiners: Paul Goldberg, Dimitrios Diochnos.

SERVICE IN JOURNALS, CONFERENCES, WORKSHOPS, AND COMPETITIONS

Program Chair	International Symposium on Artificial Intelligence and Mathematics (ISAIM) 2026.
Area Chair	NeurIPS 2024, 2025, 2026.
Program Committee	NeurIPS 2019–2023, ICML 2020–2026, CVPR 2024, AAAI 2018, 2021–2026, ECAI 2023, 2025, IJCAI 2016, 2017, 2019, AAMAS 2021, 2022, NLDL 2025, 2026, WCCI 2022, CEC 2023, ISAIM 2016–2024 (biennial), ACMSE 2021–2024, TAPIA 2022.
Managing Editor	Annals of Mathematics and Artificial Intelligence (AMAI), 2024.
Associate Editor	Annals of Mathematics and Artificial Intelligence (AMAI), 2022–.
Guest Editor	AMAI special issue for ISAIM 2018 and ISAIM 2022.
NSF	NSF reviewer 2022.
Regular Reviewer	Transactions of Machine Learning Research (TMLR), 2022–now (3 reviews per year).
Publicity Chair	ISAIM 2012–2024 (biennial).
Org. Committee	Symposium in AI & ML at OU 2019, 2020.
Scientific Committee	International Olympiad in Informatics 2004.
Webmaster	Workshop on Graph Theory & Combinatorics in Memory of Uri Peled, UIC, 2010. ISAIM 2012–2024 (biennial).
Subreviewer	SODA, AAAI, ICALP, IJCAI, ISAIM, AAMAS, ALENEX, CASC.

SERVICE AT THE UNIVERSITY OF OKLAHOMA (OU)

University of Oklahoma: Student Organization, OU AI/ML Club

- Faculty advisor of the OU AI/ML Club at the University of Oklahoma. **(2023 Spring - now)**
- Webpage: <https://ouai.cs.ou.edu>

University of Oklahoma: Student Chapter, Association for Computing Machinery (ACM)

- Faculty advisor of the Student Chapter of the Association for Computing Machinery (ACM) at the University of Oklahoma. **(2022 Fall - Summer 2025)**
- Webpage: <https://sacm.cs.ou.edu>

University of Oklahoma: Hiring Committees

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

School of Computer Science at OU: Research Committee

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

School of Computer Science at OU: Graduate Studies Committee

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

School of Computer Science at OU: Graduate Program Assessment Committee

- Member of the graduate program assessment committee. **(2025 Fall - now)**

School of Computer Science at OU: Computer Science Community Committee

- Chair of the CS community committee. (2023 Fall - 2025 Spring)

School of Computer Science at OU: Student Engagement Committee

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

School of Computer Science at OU: Graduate Recruitment Committee

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

Data Science & Analytics Program at OU: DSA PhD Application Review Committee

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

Data Science & Analytics Program at OU: DSA Curriculum Committee

- Member of the DSA Curriculum Committee. (2025 Spring - now)
- Creation of an online program for undergraduate studies in Artificial Intelligence and revamping of the graduate studies in Data Science and Analytics.

PUBLICATIONS

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

31. Patrick Kage, Jay C. Rothenberger, Pavlos Andreadis, Dimitrios I. Diochnos. A Review of Pseudo-Labeling for Computer Vision. *Journal of Artificial Intelligence Research (JAIR)*, 2026.
30. Erencem Özbey and Dimitrios I. Diochnos. Dimensionally Reduced Open-World Clustering: DROWCULA. *Thirty-Eighth Australasian Joint Conference on Artificial Intelligence (AJCAI)* 2025.
29. Jay C. Rothenberger and Dimitrios I. Diochnos. Meta Co-Training: Two Views are Better than One. *Twenty-Eighth European Conference on Artificial Intelligence (ECAI)* 2025, ECAI 2025: 3355-3362.
 *Meta Co-Training is a semi-supervised learning method that achieves State-of-the-Art performance on ImageNet-10% and does very well on ImageNet-1% too.* • The paper was also invited and presented at the ENCORE track of the *Thirty-Eighth Australasian Joint Conference on Artificial Intelligence (AJCAI)* 2025, in Canberra, Australia.
 - A preliminary version was presented at the *Joint Mathematics Meetings of the American Mathematical Society (JMM/AMS)*, Seattle, Washington, 2025.
 - Furthermore, a preliminary version was also presented at the *Eighteenth International Symposium on Artificial Intelligence and Mathematics (ISAIM)*, Fort Lauderdale, Florida, USA, 2024.
28. 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.
27. Dimitrios I. Diochnos, Martin Charles Golumbic, Frederick Hoffman. ISAIM-2022: international symposium on artificial intelligence and mathematics. *Annals of Mathematics and Artificial Intelligence (AMAI)*, 92(1): 1-4 (2024)
26. 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.
25. 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.

24. 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.
23. 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 (JAIR)*, 70: 891-921 (2021).
 - The paper was also invited and presented at the Journal track of the *Thirtieth International Joint Conference on Artificial Intelligence (IJCAI) 2021*.
 - Furthermore, a preliminary version was also presented at 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 at 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 at the *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 (AMAI)*, 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 (AMAI)*, 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 at the *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 at 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)*, 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)*, Bari, Italy, ALT 2016: 98–112, 2016.
10. Ognjen Šćekić, Tommaso Schiavinotto, Dimitrios I. Diochnos, Michael Rovatsos, Hong-Linh Truong, Iacopo Carreras, Schahram Dustdar. Programming Model Elements for Hybrid Collaborative Adaptive Systems, *First IEEE International Conference on Collaboration and Internet Computing (CIC)*, 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)*, 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, *Eleventh International Symposium on Logical Formalizations of Commonsense Reasoning (Commonsense)*, Ayia Napa, Cyprus, 2013.
6. Dimitrios I. Diochnos, Robert H. Sloan, György Turán. On multiple-instance learning of halfspaces, *Information Processing Letters (IPL)*, 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)*, 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)*, 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 (JSC)*, 44(7): 818–835, 2009. Also available at <https://arxiv.org/abs/1203.1017>.
2. 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.

PAPERS ACCEPTED

1. Pantia-Marina Alchirch, Dimitrios I. Diochnos. On Imbalanced Regression with Hoeffding Trees. Accepted at the Pacific-Asia Knowledge Discovery and Data Mining (**PAKDD**) 2026 special session on Data Science: Foundations and Applications (**DSFA**), 2026. Preprint available at <https://arxiv.org/abs/2602.22101>.

WORKSHOP PAPERS

3. Jay C. Rothenberger, Tiffany Le, Carly Sutter, Kara J. Sulia, Dimitrios I. Diochnos. Improving Road Surface Classification with Co-Training Algorithms. Presented at the *105th Annual Meeting of the American Meteorological Society (AMS)*, New Orleans, LA, Jan 15, 2025. Abstract: <https://ams.confex.com/ams/105ANNUAL/meetingapp.cgi/Paper/451835>.
2. 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 at the *103rd Annual Meeting of the American Meteorological Society (AMS)*, Denver, CO, Jan 12, 2023. Abstract: <https://ams.confex.com/ams/103ANNUAL/meetingapp.cgi/Paper/411860>.

- Also presented in the *2nd Annual NYS Mesonet Symposium (NYS Mesonet)*, Albany, NY, Sep 13, 2022.
- 1. William Keely, Sean Crowell, Berrien Moore, Dimitrios Diochnos, Christopher O'Dell. Geophysical Bias Correction of Trace Green House Gas Satellite Retrievals Using Explainable Machine Learning Methods. Presented at the *American Geophysical Union (AGU) Fall 2021 Meeting*, New Orleans, LA, Dec 14, 2021. Abstract: <https://essopenarchive.org/doi/pdf/10.1002/essoar.10510174.1>

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 Stamatopoulos.

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, Feb 2009.
Online: </research/other/randomized/essentials.pdf>.
3. Dimitrios I. Diochnos. A Brief Introduction to Search Problems, Mar 2008.
Online: /research/other/ai/intro_search.pdf.
2. Dimitrios I. Diochnos. An Introduction to the Terminal, Jan, 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*, Sep 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?sref=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

36. Meta Co-Training: Two Views are Better than One. **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 8, 2026.
35. 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
34. Building Trustworthy AI for Weather and Climate. **Invited talk** at the TechCamp Israel in Greece, Drama, Greece, July 9, 2024. Website: <https://techcamp.america.gov/techcamps/techcamp-israel-hosted-in-greece/>
33. Meta Co-Training: Two Views are Better than One. **Invited talk** at the Machine Learning / Computer Vision Reading Group at Apple. The talk was given online on February 21, 2024.
32. An Overview of Machine Learning. **Invited talk** in *Hacklahoma 2024*, University of Oklahoma, Norman, OK, February 10, 2024. Website: <https://2024.hacklahoma.org>
31. 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.
30. An Overview of Machine Learning. **Invited talk** in *Hacklahoma 2023*, University of Oklahoma, Norman, OK, April 1, 2023. Website: <https://2023.hacklahoma.org>
29. Research Issues in Adversarially Robust Stream-Based Federated Learning. *Fifth International Conference on Optimization and Learning (OLA)*, Syracuse, Sicily, Italy, July 18, 2022.
28. Learning Reliable Rules under Class Imbalance. **Invited talk** to the *Data Scholarship Program (DSP)* at the University of Oklahoma, Norman, OK, May 5, 2022.
27. 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.
26. 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.
25. Learning Reliable Rules under Class Imbalance. *2021 SIAM International Conference on Data Mining (SDM)*, Virtual (Alexandria, VA, USA), April 29, 2021.
24. 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.
23. 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.
22. Lower Bounds for Adversarially Robust PAC Learning. *19th IEEE International Conference on Machine Learning and Applications (ICMLA 2020)*, Virtual, December 14-17, 2020.
21. 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.
20. Lower Bounds for Adversarially Robust PAC Learning. *NeurIPS 2019 Workshop on Safety and Robustness in Decision Making*, Vancouver, Canada, December 13, 2019.
19. 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.

18. 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.
17. On Adversarial Examples and Misclassification. *2nd Symposium on Artificial Intelligence and Machine Learning at the University of Oklahoma*, Norman, OK, September 27, 2019.
16. 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.
15. On the evolution of monotone conjunctions: drilling for best approximations. **Invited talk**, *Theoretical Computer Science Seminar*, University of Illinois at Chicago, Chicago, IL, USA, March 7, 2017.
14. On the Evolution of Monotone Conjunctions: Drilling for Best Approximations. *37th International Conference in Algorithmic Learning Theory (ALT 2016)*, Bari, Italy, October 19, 2016.
13. Drilling for Best Approximations in Evolution. *Postdoctoral Research Symposium*, Charlottesville, VA, USA, September 20, 2016.
12. SmartSociety. *SICSA DEMOFest 14*, Edinburgh, UK, October 30, 2014.
11. SmartSociety. *SICSA DEMOFest 13*, Glasgow, UK, November 5, 2013.
10. Commonsense Knowledge Bases and Network Analysis. *Commonsense*, Ayia Napa, Cyprus, May 27, 2013.
9. On Multiple-Instance Learning of Halfspaces. **Invited talk**, *X-Theory Day*, National and Kapodistrian University of Athens, Athens, Hellas, December 19, 2011.
8. Evolvability in Learning Theory. **Invited talk**, Eötvös Loránd University, Budapest, Hungary, November 23, 2011.
7. Evolvability in Learning Theory. **Invited talk**, University of Szeged, Szeged, Hungary, November 16, 2011.
6. On Evolvability: The Swapping Algorithm, Product Distributions, and Covariance. **Invited talk**, *Algorithms Seminar*, National and Kapodistrian University of Athens, Athens, Hellas, December 23, 2010.
5. Leveling-Up in Heroes of Might and Magic III. *Fifth International Conference on Fun with Algorithms (FUN 2010)*, Ischia Island, Italy, June 3, 2010.
4. 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.
3. On Evolvability: The Swapping Algorithm, Product Distributions, and Covariance. *Midwest Theory Day, Fall 2009*, DePaul University, Chicago, IL, USA, December 5, 2009.
2. 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.
1. 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 (2× Teddy Diallo, Erencem Özbey).
- *CS 3823 - Theory of Computation*, undergraduate course, Fall 2019, Fall 2022, Fall 2023, Fall 2024, Fall 2025.
- *CS 3980 - Honors Research*, undergraduate independent study leading to a thesis, Spring 2022 (Caleb Lagge), Fall 2023 (Tyson Harris), Spring 2023 (Erin Sullivan), Spring 2025 (Luke Terry).

- *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, Spring 2025.
- *CS 5033 - Machine Learning Fundamentals (Online Program)*, course offered in the asynchronous online Master's program, Spring 2022, Spring 2023, Spring 2024.
- *CS 4713/5713 - Computational Learning Theory*, graduate course, Fall 2020, Fall 2021, Fall 2022, Fall 2023, Fall 2024, Fall 2025. The course was offered as CS 5970 between 2020-2022, as CS 5713 between 2023-2024, and as CS 4713/5713 starting from 2025 and onwards.
- *CS 5990 - Independent Study*, graduate course, Summer 2022 (Gabriela Fisher), Spring 2023 (Gabriela Fisher, Arjun Ganesan), Spring 2024 (Alberto Liu), Fall 2024 (Kevin Tran), Fall 2025 (Tommy Pham).

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.

5. **Zak Kastl**, Computer Science, University of Oklahoma, 2025–2027 (expected).
Topic: *Distillation methods and tiny machine learning for embedded systems.*
Co-advised with Dr. Yaser (Mike) Banad, University of Oklahoma.
4. **Pantia-Marina Alchirch**, Computer Science, University of Oklahoma, 2022–2027 (expected).
Topic: *Streaming data and interpretable machine learning methods.*
3. **Jay Rothenberger**, Computer Science, University of Oklahoma, 2021–2026 (expected).
Topic: *Methods of semi-supervised learning, meta-learning, self-supervised learning, and interpretable computer vision.*
2. **Naeem Shahabi-Sani**, Computer Science, University of Oklahoma, 2021–2024.
Topic: *Evolutionary methods for feature selection and robustness to noise.*
The student changed advisor in the summer of 2024.
1. **William Keely**, Data Science and Analytics (DSA), University of Oklahoma, 2021–2025.
Topic: *Machine Learning Applications for Atmospheric Retrieval from Earth Observing Spectroscopy with Robust Uncertainty Quantification.*
Co-advised with Dr. Sean Crowell, University of Oklahoma. Graduated in the Fall semester of 2025.

OU, MSc (Thesis-Based). The following graduate students at the University of Oklahoma:

2. **Tiffany Le**, Computer Science, University of Oklahoma, 2025–2026.
Topic (tentative): *Multi-View Open-World Learning.*
In progress.

1. **Luis Vazquez**, Computer Science, University of Oklahoma, 2023–2025.
Thesis: *Hierarchical Shrinkage in Tree-Based Models Applied to Image, High-Dimensional, and Noisy Data.*

OU, MSc (Non-Thesis; Project-Based). The following graduate students at the University of Oklahoma:

5. **Tommy Pham**, Graduate Student in Computer Science (Master's; project-based track), 2025 (Fall).
Topic: Semi-Supervised Learning with Co-Training on the Adult Income Dataset.
4. **Kevin Tran**, Graduate Student in Computer Science (Master's; project-based track), 2024 (Fall).
Topic: Interpretable machine learning methods.
3. **Alberto Liu**, Graduate Student in Computer Science (Master's; coursework-only track), 2024 (Spring).
Topic: Independent study in low-dimensional network embeddings using LINE.
The effort was similar to the effort required in a project-based track for a Master's degree.
2. **Gabriela N. Fisher**, Graduate Student in Computer Science (Master's; project-based track), 2023 (Spring).
Topic: Interpretable machine learning methods.
1. **Arjun Ganesan**, Graduate Student in Computer Science (Master's; project-based track), 2023 (Spring).
Topic: Adversarial examples in machine learning.

OU, MSc (Other). The following graduate students at the University of Oklahoma:

1. **Teddy Diallo**, Graduate Research Assistant, University of Oklahoma, 2024–2025.
Topic: *Machine learning and computer vision methods for identification of trees in the environment that can be potential hazards.*
Co-advised with Dr. Katerina Kyprioti, University of Oklahoma.

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

12. **Ignacio Yockers**, Undergraduate Research Assistant, AI2ES, University of Oklahoma, 2025–2026.
Topic: *Ensembles, distillation, and fidelity of explanations under distillation.*
Co-advised with my PhD student, Pantia-Marina Alchirch.
11. **Erencem Özbey**, Undergraduate exchange student during the Fall semester of 2024 from Boğaziçi University, Istanbul, Türkiye. Erencem is studying Computer Engineering and Physics for his undergraduate degree.
Topic: *Clustering methods in an open-world setting.*
10. **Teddy Diallo**, Undergraduate student that was enrolled in two separate Mentored Research Experience courses with me during the Fall semester of 2024.
Topic 1: *Confidence intervals using non-parametric methods from statistics.*
Topic 2: *Ethics and computer vision in machine learning.*
In Topic 2, Dr. Katerina Kyprioti was also involved in the last two months of the semester.
9. **Luke Terry**, Undergraduate Research Assistant, AI2ES, University of Oklahoma, 2024–2025.
Topic: *Co-training methods for imbalanced data for road-surface classification.*
Co-advised with my PhD student, Jay Rothenberger.
8. **Tiffany Le**, Undergraduate Research Assistant, AI2ES, University of Oklahoma, 2023–2024.
Topic: *Co-training methods for road-surface classification.*
Co-advised with my PhD student, Jay Rothenberger.
7. **Alberto Liu**, Undergraduate Research Assistant, AI2ES, University of Oklahoma, 2022–2023.
Topic: *Road-surface classification using supervised learning methods and a user study.*
Co-advised with my PhD student, Jay Rothenberger.
6. **Erin Sullivan**, Honors Thesis, University of Oklahoma, Spring 2023.
Thesis: *The Need for Ethical Algorithms: Exploring Algorithmic Fairness in Society.*
5. **Tyson Harris**, Honors Thesis, University of Oklahoma, Fall 2022.
Thesis: *Exploration of Bias in Machine Learning Models Using 1994 MEPS Data.*

4. **Vincent Ferrera**, Undergraduate Research Assistant, REU@AI2ES, University of Delaware, Summer 2022.
Topic: *Artificial neural networks and self-training.*
Co-advised with my PhD student, Jay Rothenberger.
3. **Jose E. Aguilar Escamilla**, McNair Scholar, University of Oklahoma, 2021–2022.
Thesis: *Perceptron Learning Under Data Corruption.*
2. **Caleb Lagge**, Undergraduate Research Assistant, DISC, Honors Thesis, University of Oklahoma, 2021–2022.
Thesis: *Clustering of meteorological phenomena..*
1. **Conner Flansburg**, Undergraduate Research Assistant, AI2ES and REU@AI2ES, University of Oklahoma, 2020–2021.
Topic: *Feature selection and adversarial learning.*

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

1. **Pantia-Marina Alchirch**, Undergraduate Thesis, Athens University of Economics and Business, 2020-2021.
Thesis: *Evolving Monotone Conjunctions in Regimes Beyond Proved Convergence.*
Co-advised with Dr Katia Papakonstantinou, Athens University of Economics and Business.

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

4. **Nicholas Georgiou**, Capstone Thesis, University of Virginia, 2017-2018.
Capstone Project: *Recommender Systems and a Case Study on the MovieLens Dataset.*
3. **Alyson Irizarry**, Capstone Thesis, University of Virginia, 2017-2018.
Capstone Project: *On Genetic Algorithms with Noisy Fitness Functions.*
2. **Andrew Lee**, Capstone Thesis, University of Virginia, 2017-2018.
Capstone Project: *A Comparative Study of Some Feature Selection Algorithms.*
1. **Ceyer Wakilpoor**, Capstone Thesis, University of Virginia, 2017-2018.
Capstone Project: *Deep Reinforcement Learning on Tic-Tac-Toe.*

COMMITTEE MEMBER IN STUDENT THESES (NOT AS ADVISOR)

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

33. Huan Pham (PhD, Computer Science, 2026-now, advisor: Dr. Doga Demirel)
32. Daniel Andres Perez Melo (PhD Data Science, 2025-now, advisor: Dr. Golnaz Habibi)
31. Francis Oyebanji (PhD, Data Science, 2025-now, advisor: Dr. Dean Hougen)
30. Airi Shimamura (PhD, ISE, 2025-now, advisor: Dr. Talayeh Razzaghi)
29. Luke Dechow (PhD, Mathematics, 2025, advisor: Dr. Justin Malestein)
28. Sam Bird (PhD, Computer Science, 2025-now, advisor: Dr. Le Gruenwald)
27. Andrew Justin (PhD, Meteorology, 2024-now, advisor: Dr. Amy McGovern)
26. Travis Casey (PhD, Mathematics, 2024-now, advisor: Dr. Miro Kramar)
25. Catherine Donner (PhD, DSA, 2024-now, advisor: Dr. Anindya Maiti)
24. Braden Roper (PhD, CS, 2024-now, Dr. Chris Weaver)
23. Anvesh Nathani (PhD, Mechanical Engineering, 2024-now, advisor: Dr. Iman Ghamarian)
22. Maisha Maliha (PhD, CS, 2024-now, advisor: Dr. Dean Hougen)
21. Shane S. Elliott (PhD, CS, 2024-now, advisor: Dr. Chris Weaver)
20. Khoi Trinh (PhD, DSA, 2024-now, advisor: Dr. Anindya Maiti)
19. Zak A. Kastl (PhD, DISC, 2023-now, advisor: Dr. David Ebert)

18. Vishnu Kadiyala (PhD, CS, 2023-now, advisor: Dr. Andrew Fagg)
17. Jason Papayik (PhD, ISE, 2023-now, advisor: Dr. Theodore Trafalis)
16. Vikash Prasad (PhD ABD, CS, 2022-2024, advisor: Dr. Ji Hwan Park)
The student has stopped their studies.
15. Brian Carlton (PhD, CS, 2022-now, advisor: Dr. Justin Metcalf)
14. Justin C. Reynolds (PhD, CS, 2022-now, advisor: Dr. Chongle Pan)
13. Lena Trigg (PhD, CS, 2022-now, advisor: Dr. Dean Hougen)
12. Yunlong Liu (PhD, CS, 2022-now, advisor: Dr. Chongle Pan)
11. Brandon Morgan (PhD, CS, 2022-2024, advisor: Dr. Dean Hougen)
10. Philip Bretz (PhD, Math, 2023, advisor: Dr. Miro Kramar)
9. Saurabh Patil (PhD, Meteorology, 2022-now, advisor: Dr. Greg McFarquhar)
8. Ahmad Tashfeen (PhD, CS, 2022-now, advisor: Dr. Qi Cheng)
7. Geoffrey Dolinger (PhD, ECE, 2022-now, advisor: Dr. Justin Metcalf)
6. Lex Beattie (PhD, DSA, 2023, advisor: Dr. Dean Hougen)
5. Elaheh Jafarigol (PhD, ISE, 2023, advisor: Dr. Theodore Trafalis)
4. Yiting Cao (PhD, CS, 2023, advisor: Dr. Chao Lan)
3. Beth Earnest (PhD, CS, 2020-2024, advisor: Dr. Amy McGovern)
2. Nathan Jones (PhD, Math, 2020-now, advisor: Dr. Miro Kramar)
The student has stopped their studies.
1. Jalal Saidi (PhD, CS, 2020-now, advisor: Dr. Dean Hougen)

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

12. Mathieu Laurencot (MSc, CS, 2025-now, advisor: Dr. Chongle Pan)
11. Doruk Ayhan (MSc, CS, 2025-now, advisor: Dr. Doga Demirel)
10. Michael Quaynor (MSc, DSA, 2024-now, advisor: Kasun Gunasooriya)
9. Mel Wilson Reyes (MSc, CS, 2022-2023, advisor: Andrew Fagg)
8. Jacob Sturges (MSc, DSA, 2022-now, advisor: Dean Hougen)
7. Francis Oyebanji (MSc, CS, 2022, advisor: Dean Hougen)
6. Jose Aguilar (MSc, CS, 2022-2023, advisor: Dean Hougen)
5. Sinaro Ly (MSc, CS, 2023, advisor: Chongle Pan)
4. Dang Bibi (MSc, ECE, 2022, advisor: Justin Metcalf)
3. Morgan Brandon (MSc, CS, 2022, advisor: Dean Hougen)
2. Francis F. Oyebanji (MSc, CS, 2022, advisor: Dean Hougen)
1. 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 the International Olympiad for Informatics (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.

LANGUAGES

Fluent		Greek (native), English
Elementary		German

UPDATED

Last update was performed on April 7, 2026 at 14:24.