Daniel R. Tauritz, Ph.D.

Full Curriculum Vitae

COLSA Corporation Cyber Security and Information Assurance Endowed Professor
Director for National Laboratory Relationships
Samuel Ginn College of Engineering
Auburn University (AU)
Auburn, Alabama 36849, U.S.A.
E-mail: mailto:dtauritz@auburn.edu, Web: https://bonsai.auburn.edu/dtauritz/

Primary Area of Research

Artificial Intelligence approaches to complex real-world problem solving with an emphasis on National Security problems in areas such as Cyber Security & Critical Infrastructure Protection. Current foci:

I Computational Game Theory employing Competitive Coevolutionary Algorithms for identifying high-consequence adversarial strategies and corresponding defense strategies.

II Hyper-heuristics employing Evolutionary Computation for the Automated Design of Algorithms tailored for high-performance on targeted problem classes.

III Evolutionary Algorithms for Simulating Molecular Evolution.

Research Appointments

4/2012-current Los Alamos National Laboratory (LANL), Los Alamos, New Mexico, U.S.A.
- **8/2019-current** Guest Scientist
- **5/2014-current** University Collaboration Scientist, A-4: Advanced Research in Cyber Systems
- **3/2013-9/2024** University Director, Cyber Security Sciences Institute (CSSI)
- **4/2012-4/2014** Guest Scientist

5/2005-current Sandia National Laboratories, Albuquerque, New Mexico, U.S.A.
- **8/21/2019-current** Cyber Consultant, Department 05623 – Special Cyber Initiatives / Department 09373 – Cyber Security Initiatives
- **8/1/2015-9/30/2019** Contract Scientist, Department 05838 – Cyber Initiatives
- **9/1/2014-7/31/2015** Sabbatical Faculty, Department 05631 – Threat Analysis Technologies
- **5/2005-8/2005** Summer Faculty, Center for Cyber Defenders

3/1996-11/1996 NATO C3 Agency[1], The Hague, The Netherlands
- **9/1996-11/1996** Research Contractor
- **3/1996-8/1996** Graduate Research Intern

Academic Appointments

8/2019-current Auburn University, Auburn, AL, U.S.A.
- **8/2025-current** COLSA Corporation Cyber Security and Information Assurance Endowed Professor with Tenure, Department of Computer Science and Software Engineering
- **1/2025-current** Affil. Faculty, Auburn University Center for Artificial Intelligence and Cybersecurity Engineering (AU-CAICE)
- **1/2023-current** Director for National Laboratory Relationships (DNLR)
- **9/2019-current** Director, Biomimetic National Security Artificial Intelligence Laboratory (BONSAI Lab)
- **9/2019-current** Head, Biomimetic Artificial Intelligence Research Group (BioAI Group)

[1] since 2012 part of the NATO Communications and Information Agency

8/2019-current Affil. Faculty, McCrary Institute for Cyber & Critical Infrastructure Security
6/2020-12/2024 Interim Director, Auburn Cyber Research Center (ACRC)
8/2019-12/2024 Chief Cyber AI Strategist, Auburn Cyber Research Center (ACRC)
8/2019-8/2025 Associate Professor with Tenure, Department of Computer Science and Software Engineering
8/2002-8/2019 Missouri University of Science and Technology (Missouri S&T)[2], Rolla, MO, U.S.A.
7/2016-6/2019 Associate Chair for Undergraduate Studies and Outreach Activities, Department of Computer Science
12/2014-8/2019 Associate Professor Courtesy Joint Appointment, Department of Electrical and Computer Engineering
1/1/2014-6/30/2014 Associate Chair for Undergraduate Studies and Outreach Activities, Department of Computer Science [stepped down due to sabbatical]
9/2008-8/2019 Associate Professor of Computer Science with Tenure
5/2008-8/2019 Investigator in the Energy Research & Development Center (ERDC)
7/2006-8/2019 Research Investigator in the Intelligent Systems Center (ISC)
10/2002-8/2019 Director of the Natural Computation Laboratory (NC-LAB)
8/2002-8/2008 Assistant Professor of Computer Science
2/2005-6/2006 Affiliated Member of the Intelligent Systems Center (ISC)
4/1997-12/1997 Instructor of Computer Science, University of South Alabama, Mobile, AL, U.S.A.
9/1994-12/2001 Leiden University, Leiden, The Netherlands
12/1997-12/2001 Research Associate in Computer Science
9/1995-12/1995 Graduate Teaching Assistant in Computer Science
9/1994-12/1994 Graduate Teaching Assistant in Computer Science

Education

Leiden University, Leiden, The Netherlands
- Ph.D. in Computer Science (2002)
  Dissertation title: "Adaptive Information Filtering: concepts and algorithms"
  Advisors: Joost N. Kok and Ida G. Sprinkhuizen-Kuyper
- Master of Science in Computer Science (1996)
- Propaedeutic in Computer Science (1992) and Mathematics (1992)

Summary of Major Research Accomplishments

- Grants & Contracts Funding Summary
  - Grand Total (PI & Co-PI): $12,671,198 (shared credit: $4,962,098)
  - PI Total: $2,845,611

- Established research, workforce training, and recruiting relationships with Los Alamos National Laboratory (LANL). Co-founded in 2013 the Cyber Security Sciences Institute (CSSI), a subinstitute of LANL's Information Science and Technology Institute (ISTI). CSSI was awarded $1,535K in contracts from LANL; its research is focused on solving complex security problems inherent to enterprise computer networks employing computational intelligence approaches, including co-evolutionary approximations of game theory and novel hyper-heuristic techniques. Gave invited talks at LANL in 2012 & 2013. Arranged for a variety of university faculty & administrators to visit LANL and give invited talks, most recently in July 2024 an AU CSSE faculty member. Hosted a variety of LANL visits, including eighteen at AU between September 2019 and May 2025.

[2]named changed in 2008 from University of Missouri-Rolla

- Established research, education, and recruiting relationships with Sandia National Laboratories, first as summer faculty in Sandia's Center for Cyber Defenders, subsequently as S&T's campus coordinator for Sandia's recruiting efforts, in Academic Year 2014-2015 as sabbatical faculty in residence at Sandia, then as contract scientist, and most recently as cyber consultant. Received $2,630K so far in total research contracts, $571K in research contracts as principal investigator, for research spanning computational intelligence techniques applied to cyber security and critical infrastructure protection and hyper-heuristics for automated algorithm design and automated code targeting for diverse computational architectures. Gave invited talks at Sandia in 2005, 2012, 2013, 2014, and 2015. Hosted a variety of Sandia visits, including most recently at AU in April 2024.

- Founded the Biomimetic National Security Artificial Intelligence Laboratory (BONSAI Lab) at AU in September 2019 as a successor to the Natural Computation Laboratory (NC-LAB) at S&T which I founded in 2002. My labs have focused on the creation and innovative application of AI, in particular evolutionary computing and hyper-heuristics, to address wickedly hard national security problems, in particular in the areas of cyber security and critical infrastructure protection. The bulk of their funding has come from Sandia National Laboratories (SNL), Los Alamos National Laboratory (LANL), Kansas City National Security Campus (KCNSC), and the National Science Foundation (NSF). The BONSAI Lab is a controlled access lab for performing export controlled research.

- Assumed leadership roles in the ACM SIGEVO community, as Late Breaking Papers Chair at the 2010 ACM SIGEVO Genetic and Evolutionary Computation Conference (GECCO 2010), Genetic Algorithms Track Co-Chair at GECCO 2012 & 2013, co-founder of the Combinatorial Black Box Optimization Competition (CBBOC), first held at GECCO 2015 and repeated at GECCO 2016, co-chair of the Workshop on Evolutionary Computation for the Automated Design of Algorithms (ECADA) held at GECCO since 2015, co-chair of the 2nd Workshop on Metaheuristic Design Patterns (MetaDeeP) at GECCO 2015, and co-instructor of the (Generative) Hyper-heuristics Tutorial offered annually at GECCO from 2015 through 2024..

- Granted on 11/29/2011, together with co-inventor Ray Luechtefeld, US patent 8,069,131 for an NSF funded virtual facilitation research project, namely an artificially intelligent rule-based system to assist teams or groups in becoming more effective by improving the communication process between members of the team or group. The system helps members share information, negotiate more effectively and make better group decisions. The system is designed to allow users to generate dialog interventions and rule sets which are then vetted by all users of the system.

Summary of Major Awards

- Received Missouri S&T Outstanding Teaching Awards for Academic Years 2017-2018, 2016-2017, 2010-2011, 2007-2008, and 2006-2007[3].

- Received Missouri S&T 2014 Faculty Service Award.

- Received Missouri S&T's Global Learning 2012 Outstanding Teaching Commendation Award.

[3]at the time of the 2006-2007 Outstanding Teaching Award, Missouri S&T was known as University of Missouri-Rolla

Funding

Pending Grants & Contracts - sorted by end date

- "Research Infrastructure: Cyberinfrastructure for Evolutionary Algorithms Simulating Molecular Evolution" (co-PI, 50% credit), $2,999,992, National Science Foundation (NSF) (with John Beckmann).
- "SFS Renewal: Artificial Intelligence for Security (AI4Sec)" (co-PI, 17% credit), $4,957,911, National Science Foundation (NSF) (with Farah Kandah, Dean Hendrix, Gerry Dozier, and Akond Rahman).

Awarded Grants & Contracts - sorted by end date

GC1. "Advanced Computing for National Security (ACNS)" (PI, 25% credit), $440,000 in FY25 funding with a $3,000,000 ceiling over the period of performance, 3/27/2025–9/30/2029, Los Alamos National Laboratory (LANL) (with Samuel Mulder).

GC2. "RFID Base Support" (Co-PI, $33\frac{1}{3}$% credit), $954,860, 11/3/2023–9/30/2025, Los Alamos National Laboratory (LANL) subcontract via TechSource (with Senthil Gounder P. and Justin Patton).

GC3. "CyberCorps Scholarship for Service (SFS): Using AU's Land Grant Mission To Prepare Cybersecurity Professionals" (Co-PI, $33\frac{1}{3}$% credit), $4,667,362, 9/1/2017–8/31/2025, National Science Foundation (NSF) (with Dean Hendrix and David Umphress).

GC4. "LANL/AU Cyber Security Sciences Institute (CSSI)" (PI, 60% credit), $915,000, 12/5/2019–9/30/2024, Los Alamos National Laboratory (LANL) (with Samuel Mulder).

GC5. "Provable Cyber Assurance" (Co-PI, 25% credit, $100,000, 7/22/2024–9/30/2024, Sandia National Laboratories (with Samuel Mulder).

GC6. "EAGER: SaTC-EDU: Transformative Educational Approaches to Meld Artificial Intelligence and Cybersecurity Mindsets" (Co-PI, 40% credit), $299,941, 5/1/2021–4/30/2024, National Science Foundation (NSF) (with Drew Springall and Dean Hendrix).

GC7. "Additive Manufacturing Security – Automating Optimization of Security" (PI, 50% credit), $100,000, 5/22/2023-8/31/2023, Honeywell Federal Manufacturing & Technologies (Honeywell FM&T) for Kansas City National Security Campus (KCNSC) (with Samuel Mulder).

GC8. "Development of a Robust, Nationally Accessible Cybersecurity Risk Management Curriculum for Technical and Managerial Cybersecurity Professionals" (Co-PI, 25% credit), $499,377, 09/29/2021–9/28/2022, University of Illinois (with Marc Sachs and David Umphress).

GC9. "Automated Search of Additive Manufacturing Sabotage Attack Space: Phase I" (PI, 50% credit), $100,000, 6/2/2022-8/31/2022, Honeywell Federal Manufacturing & Technologies (Honeywell FM&T) for Kansas City National Security Campus (KCNSC) (with Mark Yampolskiy).

GC10. "Coevolving Attack and Defense of Mega-Constellations for Omnipresence" (PI, 50% credit), $50,000, 5/1/2020–4/30/2022, Auburn University Intramural Grants Program (IGP) (with Davide Guzzetti).

GC11. "Utilizing An Academic Hub & Spoke Model To Create A National Network Of Cyber Security Institutes" (Co-PI, 25% credit), $400,000, 10/1/2020–9/24/2021, University of Illinois (with Frank Cilluffo and David Umphress).

GC12. "Machine Learning for Enhancing Physics Simulations: An Initial Investigation" (PI, 100% credit), $10,022, 2/25/2021–8/31/2021, Honeywell Federal Manufacturing & Technologies (Honeywell FM&T) for Kansas City National Security Campus (KCNSC).

GC13. "In Plant Tracking and Part DNA" (PI, 100% credit), $153,022, 12/9/2020–8/31/2021, Honeywell Federal Manufacturing & Technologies (Honeywell FM&T) for Kansas City National Security Campus (KCNSC).

GC14. "In Plant Tracking and Part DNA" (PI, 100% credit), $60,034, 1/16/2020–11/30/2020, Honeywell Federal Manufacturing & Technologies (Honeywell FM&T) for Kansas City National Security Campus (KCNSC).

GC15. "Regional Training Event Implementation Guide" (Co-PI, 25% credit), $15,501, 9/8/2020–9/30/2020, Battelle for Idaho National Laboratory (INL) (with David Umphress et al).

GC16. "LANL/S&T Cyber Security Sciences Institute (CSSI)" (PI, 100% credit), $76,133, 5/6/2019–9/30/2019, Los Alamos National Laboratory (LANL).

GC17. "Hyper-heuristics for solving real-world problems on diverse computational architectures" (PI, 100% credit), $226,000, 10/1/2014–9/30/2019, Sandia National Laboratories.

GC18. "RFID – In Plant Location Tracking" (Co-PI, 50% credit), $80,000, 1/17/2019–8/30/2019, Kansas City National Security Campus (with Jagannathan Sarangapani).

GC19. "LANL/S&T Cyber Security Sciences Institute (CSSI)" (PI, 100% credit), $466,000, 10/1/2013–12/31/2018, Los Alamos National Laboratory.

GC20. "Computational Intelligence Techniques for Situational Awareness in Computing Networks" (PI, 100% credit), $299,680, 11/4/2011–9/30/2014, Sandia National Laboratories.

GC21. "Peer to Peer Infrastructure Security" (Co-PI, 10% credit), $2,669, 9/11/2013–9/10/2014, National Security Agency (with Bruce McMillin et al).

GC22. "LANL/Missouri University of Science and Technology Cyber Security Sciences Institute" (PI, 100% credit), $78,034, 3/7/2013–9/30/2013, Los Alamos National Laboratory.

GC23. "Common Correctness for Protecting Confidentiality of Critical Infrastructure Systems" (Co-PI, 10% shared credit), $41,250, 8/31/2011–11/30/2012, National Security Agency (with Bruce McMillin and Sahra Sedighsarvestani).

GC24. "Computational Intelligence Techniques for Virtual Facilitation" (PI, 100% credit), $57,066, 6/1/2011–8/15/2012, University of La Verne.

GC25. "Common Correctness for Protecting Confidentiality of Critical Infrastructure Systems" (Co-PI, 10% shared credit), $115,133, 9/13/2010–12/12/2011, National Security Agency (with Bruce McMillin, Ann Miller and Sahra Sedighsarvestani).

GC26. "Attack and Event Representation in Electric Power Transmission Systems" (PI, 100% credit), $5,000, 8/22/2011–9/30/2011, Sandia National Laboratories.

GC27. "Computational Intelligence Techniques for Malware Classification" (PI, 100% credit), $39,996, 1/15/2011–8/15/2011, Sandia National Laboratories.

GC28. "A GPU-based High Performance Computing Cluster for Multiple Military Modeling Capabilities" (Co-PI, 25% shared credit), $150,000, 5/12/2009–5/11/2011, Department of Defense - Air Force Office of Scientific Research (with Donald Wunsch, Sanjeev Agarwal, and Ganesh Venayagamoorthy).

GC29. "Common Correctness for Protecting Confidentiality of Critical Infrastructure Systems" (Co-PI, 15% shared credit), $28,006, 9/10/2009–12/31/2010, National Security Agency (with Bruce McMillin, Ann Miller and Sahra Sedighsarvestani).

GC30. "Common Correctness for Protecting Confidentiality of Critical Infrastructure Systems" (Co-PI, 15% shared credit), $32,998, 9/8/2008–9/7/2009, National Security Agency (with Bruce McMillin, Ann Miller and Sahra Sedighsarvestani).

GC31. "A Program to Facilitate Scholastic Achievement in Computer Science, Engineering, and Mathematics" (Co-PI, 45% shared credit), $225,464, 8/15/2004–7/31/2009, NSF (with Jennifer Leopold and Harvest Collier).

GC32. "The Study and Reduction of the Deleterious Effects on Interacting Power Control Devices" (Co-PI, 12% shared credit), $680,859, 5/1/2006–4/30/2007, Sandia National Laboratories (with Mariesa Crow, Bruce McMillin, Frank Liu, Badrul Chowdhury and Jag Sarangapani).

GC33. "Interconnected Laboratory Scale FACTS Devices" (Co-PI, 12% shared credit), $1,278,391, 4/15/2005–4/30/2006, Sandia National Laboratories (with Mariesa Crow, Bruce McMillin, Frank Liu, Badrul Chowdhury and Jag Sarangapani).

GC34. "Computational Intelligence Enhanced Intrusion Detection" (PI, 100% credit), $23,400, 1/1/2003–12/31/2003, University of Missouri Research Board.

Computing Research Association (CRA) Direct Funded Student Projects

CRA1. "Scalable Automated Tailoring of SAT Solvers" (PI, 100% credit), $7,500, 2018-2019 academic year, Computer Research Association's Committee on the Status of Women in Computing Research. *Direct payment from CRA of student stipends and travel reimbursement.*

CRA2. "Automated Partial Credit Grading: Demonstration Project" (PI, 50% credit), $12,000, 2011-2012 academic year, Computer Research Association's Committee on the Status of Women in Computing Research (with Matt Insall). *Direct payment from CRA of student stipends and travel reimbursement.*

CRA3. "Computer Science Recruitment for the 21st Century: Phase III" (PI, 100% credit), $9,500, 2008-2009 academic year, Computer Research Association's Committee on the Status of Women in Computing Research. *Direct payment from CRA of student stipends and supplies/travel reimbursement.*

CRA4. "Indoor Air Quality Simulator with Lab Interface and Interactive Consumer Interface" (PI, 50% shared credit), $22,500, 2007-2008 academic year, Computer Research Association's Committee on the Status of Women in Computing Research (with Glenn Morrison). *Direct payment from CRA of student stipends and supplies/travel reimbursement.*

CRA5. "Computer Science Recruitment for the 21st Century" (PI, 100% credit), $9,500, 2007-2008 academic year, Computer Research Association's Committee on the Status of Women in Computing Research. *Direct payment from CRA of student stipends and supplies/travel reimbursement.*

CRA6. "Computer Science Recruitment in the 21st Century: Improving the image of Computer Science with 6th graders, especially females" (PI, 100% credit), $6,500, 2006-2007 academic year, Computer Research Association's Committee on the Status of Women in Computing Research. *Direct payment from CRA of student stipends and supplies/travel reimbursement.*

Donations Obtained

D1. Spring Semester 2019: $1,000 support for Artificial Intelligence Tournament from Sandia National Laboratories
D2. Spring Semester 2018: $1,000 support for Artificial Intelligence Tournament from Sandia National Laboratories
D3. Fall Semester 2016: $650 support for Artificial Intelligence Tournament from Sandia National Laboratories
D4. Spring Semester 2016: $650 support for Artificial Intelligence Tournament from Sandia National Laboratories
D5. Spring Semester 2014: $600 support for Artificial Intelligence Tournament from Sandia National Laboratories
D6. Fall Semester 2013: $100 support for prizes for a semester long competition in CS 128 - Discrete Mathematics for Computer Science from Sandia National Laboratories
D7. Spring Semester 2013: $550 support for Artificial Intelligence Tournament from Sandia National Laboratories
D8. Fall Semester 2012: $100 support for prizes for a semester long competition in CS 128 - Discrete Mathematics for Computer Science from Carfax
D9. Spring Semester 2012: $500 support for Artificial Intelligence Tournament from Sandia National Laboratories
D10. Fall Semester 2008: NVIDIA Tesla GPGPU cards from NVIDIA
D11. Spring Semester 2005: Prizes for AI Tournament from Network Appliance
D12. Fall Semester 2004: Prizes for AI Tournament from Microsoft
D13. Fall Semester 2003: Prizes for AI Tournament from Microsoft

Publication Record

Refereed Publications

P1. Sean N. Harris, Daniel R. Tauritz, and Samuel Mulder. Analyzing Competitive Coevolution across Families of N-Player Games through Tree Search. To appear in *Proceedings of the 18th ACM/SIGEVO Conference on Foundations of Genetic Algorithms (FOGA XVIII)*, Leiden, The Netherlands, August 27–29,2025.

P2. James S. L. Browning, Daniel R. Tauritz, John Beckmann. Evolutionary Algorithms Simulating Molecular Evolution: A New Field Proposal. Briefings in Bioinformatics, Volume 25, Issue 5, September 2024. `https://doi.org/10.1093/bib/bbae360`

P3. Rehman S. Qureshi, Robert Gleason, Akhil Rao, Samuel Mulder, Daniel R. Tauritz, and Davide Guzzetti. A Tabletop Game to Study Business Wargaming in the P-LEO SATCOM Marketplace. In *Proceedings of the IEEE Conference on Games (CoG) 2024*, pages 1–8, Milan, Italy, August 5–8, 2024. `https://doi.org/10.1109/CoG60054.2024.10645581`

P4. Braden N. Tisdale and Daniel R. Tauritz. Breaking the Cycle: Exploring the Advantages of Novel Evolutionary Cycles. In *Proceedings of the 2023 IEEE Symposium Series on Computational Intelligence (IEEE SSCI 2023)*, pages 355–360, Mexico City, Mexico, December 5–8, 2023. `https://doi.org/10.1109/SSCI52147.2023.10372053`

P5. Manuel Indaco, Sean N. Harris, Deacon Seals, Samuel Mulder, Daniel R. Tauritz, and Davide Guzzetti. Coevolving Defender Strategies Within Adversarial Ground Station Transit Time Games via Competitive Coevolution. The Journal of the Astronautical Sciences, **70**, 48, November 10, 2023. https://doi.org/10.1007/s40295-023-00411-w

P6. Deacon Seals, Robert Ethan Wilkes, Daniel R. Tauritz. Maelstrom: An Accelerator-compatible GP Framework. In *Proceedings of the 25th Annual Conference Companion on Genetic and Evolutionary Computation (GECCO '23)*, pages 1882–1890, Lisbon, Portugal, July 15–19, 2023. https://doi.org/10.1145/3583133.3596359

P7. John Beckmann, Joe Gillespie, and Daniel Tauritz. Modeling emergence of Wolbachia toxin-antidote protein functions with an evolutionary algorithm. Frontiers in Microbiology, 14:1116766, June 2023. https://doi.org/10.3389/fmicb.2023.1116766

P8. Braden N. Tisdale, Deacon J. Seals, Aaron Scott Pope, and Daniel R. Tauritz. Directing Evolution: The Automated Design of Evolutionary Pathways Using Directed Graphs. In *Proceedings of the 23rd Annual Conference on Genetic and Evolutionary Computation (GECCO '21)*, pages 732–740, Lille, France, July 10–14, 2021. https://doi.org/10.1145/3449639.3459328

P9. Sean N. Harris and Daniel R. Tauritz. Competitive Coevolution for Defense and Security: Elo-Based Similar-Strength Opponent Sampling. In *Proceedings of the 23rd Annual Conference Companion on Genetic and Evolutionary Computation (GECCO '21)*, pages 1898–1906, Lille, France, July 10–14, 2021. https://doi.org/10.1145/3449726.3463193

P10. Sean N. Harris and Daniel R. Tauritz. Elo-based Similar-Strength Opponent Sampling for Multiobjective Competitive Coevolution. In *Proceedings of the 23rd Annual Conference Companion on Genetic and Evolutionary Computation (GECCO '21)*, pages 237-238, Lille, France, July 10–14, 2021 (two-page poster abstract). https://doi.org/10.1145/3449726.3459559

P11. Michael H. Prince, Andrew J. McGehee, and Daniel R. Tauritz. EDM-DRL: Toward Stable Reinforcement Learning through Ensembled Directed Mutation. In *Proceedings of the 24th International Conference on the Applications of Evolutionary Computation, part of EvoStar 2021*, pages 275–290, Virtual Event, April 7–9, 2021. https://doi.org/10.1007/978-3-030-72699-7_18

P12. Michael H. Prince, Kristian K. DeHaan and Daniel R. Tauritz. A Multi-Objective Evolutionary Algorithm Approach for Optimizing Part Quality Aware Assembly Job Shop Scheduling Problems. In *Proceedings of the 24th International Conference on the Applications of Evolutionary Computation, part of EvoStar 2021*, pages 97–112, Virtual Event, April 7–9, 2021. https://doi.org/10.1007/978-3-030-72699-7_7

P13. Aaron Scott Pope and Daniel R. Tauritz. Automated Design of Multi-Level Network Partitioning Heuristics Employing Self-Adaptive Primitive Granularity Control. In *Proceedings of the 22nd Annual Conference on Genetic and Evolutionary Computation (GECCO '20)*, pages 1168–1176, Cancún, Mexico, July 8-12, 2020. https://doi.org/10.1145/3377930.3389819

P14. Jay Patel, Dhathri H. Somavarapu, Deacon Seals, Daniel R. Tauritz, and Davide Guzzetti. Adversarial Threats to LArge Satellite Networks (ATLAS-N): A Coevolutionary Approach Based on FlipIt. In *Proceedings of the 22nd Annual Conference Companion on Genetic and Evolutionary Computation (GECCO '20)*, pages 1503–1511, Cancún, Mexico, July 8-12, 2020. https://doi.org/10.1145/3377929.3398133

P15. Ian Bradley Morgan and Daniel R. Tauritz. ExaEvo: Topological Optimization and Scalability of Evolutionary Algorithms. In *Proceedings of the 22nd Annual Conference Companion on Genetic and Evolutionary Computation (GECCO '20)*, pages 1747–1755, Cancún, Mexico, July 8-12, 2020. https://doi.org/10.1145/3377929.3398127

P16. Braden N. Tisdale, Aaron Scott Pope, and Daniel R. Tauritz. Dynamic Primitive Granularity Control: An Exploration of Unique Design Considerations. In *Proceedings of the 22nd Annual Conference Companion on Genetic and Evolutionary Computation (GECCO '20)*, pages 1906–1914, Cancún, Mexico, July 8-12, 2020. https://doi.org/10.1145/3377929.3398131

P17. Nathaniel R. Kamrath, Aaron Scott Pope, and Daniel R. Tauritz. The Automated Design of Local Optimizers for Memetic Algorithms Employing Supportive Coevolution. In *Proceedings of the 22nd Annual Conference Companion on Genetic and Evolutionary Computation (GECCO '20)*, pages 1889–1897, Cancún, Mexico, July 8-12, 2020. https://doi.org/10.1145/3377929.3398132

P18. Aaron Scott Pope, Daniel R. Tauritz, and Melissa Turcotte. Automated Design of Tailored Link Prediction Heuristics for Applications in Enterprise Network Security. In *Proceedings of the 21st Annual Conference Companion on Genetic and Evolutionary Computation (GECCO '19)*, pages 1634–1642, Prague, Czech Republic, July 13-17, 2019. https://doi.org/10.1145/3319619.3326861

P19. Adam Harter, Aaron Scott Pope, Daniel R. Tauritz, and Chris Rawlings. Empirical Evidence of the Effectiveness of Primitive Granularity Control for Hyper-Heuristics. In *Proceedings of the 21st Annual Conference Companion on Genetic and Evolutionary Computation (GECCO '19)*, pages 1478–1486, Prague, Czech Republic, July 13-17, 2019. https://doi.org/10.1145/3319619.3326860

P20. Aaron Scott Pope, Daniel R. Tauritz, and Chris Rawlings. Automated Design of Random Dynamic Graph Models. In *Proceedings of the 21st Annual Conference Companion on Genetic and Evolutionary Computation (GECCO '19)*, pages 1504–1512, Prague, Czech Republic, July 13-17, 2019. https://doi.org/10.1145/3319619.3326859

P21. Samuel N. Richter, Michael G. Schoen, and Daniel R. Tauritz. Evolving Mean-Update Selection Methods for CMA-ES. In *Proceedings of the 21st Annual Conference Companion on Genetic and Evolutionary Computation (GECCO '19)*, pages 1513–1517, Prague, Czech Republic, July 13-17, 2019. https://doi.org/10.1145/3319619.3326827

P22. Marketa Illetskova, Islam Elnabarawy, Leonardo Enzo Brito da Silva, Daniel R. Tauritz, and Donald C. Wunsch II. Nested Monte Carlo Search Expression Discovery for the Automated Design of Fuzzy ART Category Choice Functions. In *Proceedings of the 21st Annual Conference Companion on Genetic and Evolutionary Computation (GECCO '19)*, pages 171–172, Prague, Czech Republic, July 13-17, 2019 (two-page poster abstract). https://doi.org/10.1145/3319619.3322050

P23. Aaron Scott Pope, Daniel R. Tauritz, and Chris Rawlings. Automated Design of Random Dynamic Graph Models for Enterprise Computer Network Applications. In *Proceedings of the 21st Annual Conference Companion on Genetic and Evolutionary Computation (GECCO '19)*, pages 352–353, Prague, Czech Republic, July 13-17, 2019 (two-page poster abstract). https://doi.org/10.1145/3319619.3322049

P24. Samuel N. Richter, Michael G. Schoen, and Daniel R. Tauritz. Comparing Terminal Sets for Evolving CMA-ES Mean-Update Selection. In *Proceedings of the 21st Annual Conference Companion on Genetic and Evolutionary Computation (GECCO '19)*, pages 326–327, Prague, Czech Republic, July 13-17, 2019 (two-page poster abstract). https://doi.org/10.1145/3319619.3321977

P25. Aaron S. Pope, Daniel R. Tauritz and Alexander D. Kent. Evolving Bipartite Authentication Graph Partitions. IEEE Transactions on Dependable and Secure Computing, 16(1):58–71, January/February 2019. https://doi.org/10.1109/TDSC.2017.2652469

P26. Kevin Schoonover, Eric Michalak, Sean Harris, Adam Gausmann, Hannah Reinbolt, Daniel R. Tauritz, Chris Rawlings, and Aaron Scott Pope. Galaxy: A Network Emulation Framework for Cybersecurity. In *Proceedings of the 11th USENIX Workshop on Cyber Security Experimentation and Test (CSET '18)*, Baltimore, MD, U.S.A., August 13, 2018. https://www.usenix.org/system/files/conference/cset18/cset18-paper-schoonover.pdf

P27. Aaron Scott Pope, Robert Morning, Daniel R. Tauritz, and Alexander Kent. Automated Design of Network Security Metrics. In *Proceedings of the 20th Annual Conference Companion on Genetic and Evolutionary Computation (GECCO '18)*, pages 1680–1687, Kyoto, Japan, July 15-19, 2018. https://doi.org/10.1145/3205651.3208266

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T14. Bruce McMillin, Mariesa L. Crow, Daniel R. Tauritz, F Liu, B Chowdhury and J Sarangapani. Improving Power Transmission Efficiency and Reliability through Hardware/Software Co-Design. Second Carnegie Mellon Conference in Electric Power Systems: Monitoring, Sensing, Software and Its Valuation for the Changing Electric Power Industry, Pittsburgh, Pennsylvania, January 11–12, 2006.

Technical Reports

TR1. Stephen T. Jones, Alexander V. Outkin, Jared Lee Gearhart, Jacob Aaron Hobbs, John Daniel Siirola, Cynthia A. Phillips, Stephen Joseph Verzi, Daniel Tauritz, Samuel A. Mulder, Asmeret Bier Naugle. PLADD: Deterring Attacks on Cyber Systems and Moving Target Defense. Technical Report SAND2017-0412C, Sandia National Laboratories, 2017. `https://www.osti.gov/biblio/1417561`

TR2. Jared Lee Gearhart, Jacob Aaron Hobbs, Stephen T. Jones, Samuel A. Mulder, Asmeret Bier Naugle, Alexander V. Outkin, Cynthia A. Phillips, John Daniel Siirola, Daniel Tauritz, Stephen Joseph Verzi. A New Scheduling Problem Motivated by Moving-target Cyberdefense. Technical Report SAND2016-2709C, Sandia National Laboratories, 2016. `https://www.osti.gov/biblio/1364842`

TR3. Stephen Jones, Alexander Outkin, Jared Gearhart, Jacob Hobbs, John Siirola, Cindy Phillips, Stephen Verzi, Daniel Tauritz, Samuel Mulder, Asmeret Naugle. Evaluating Moving Target Defense with PLADD. Technical Report SAND2015-8432R, Sandia National Laboratories, 2015. `https://doi.org/10.1109/SCC49971.2021.00014`

TR4. Daniel R. Tauritz. Adaptive Information Filtering: concepts and algorithms. Ph.D. dissertation, Leiden University, 2002, ISBN 90-9015926-6.

TR5. Daniel R. Tauritz and Ida G. Sprinkhuizen-Kuyper. Adaptive information filtering: improvement of the matching technique and derivation of the evolutionary algorithm. Technical Report 99-04, Leiden University, 1999.

TR6. Daniel R. Tauritz. Adaptive information filtering as a means to overcome information overload. Master's thesis, Leiden University, 1996.

TR7. Daniel R. Tauritz. Concepts of adaptive information filtering. Technical Report 96-19, Leiden University, 1996.

TR8. Daniel R. Tauritz. Optimization of the discriminatory power of a trigram based document clustering algorithm using evolutionary computation. Technical Report 96-5, Leiden University, 1996.

TR9. Lucien G. Heins and Daniel R. Tauritz. Adaptive Resonance Theory (ART): An introduction. Technical Report 95-35, Leiden University, 1995.

Invited Talks & Panels

6/26/2024 "Evolutionary Algorithms Simulating Molecular Evolution" (together with John Beckmann and James Browning), Theoretical Biology and Biophysics group, Los Alamos National Laboratory, Los Alamos, New Mexico, U.S.A.

3/4/2020 "Use of AI for Cybersecurity", Building an AI Powered Intelligence Community Symposium, Intelligence and National Security Alliance (INSA), Arlington, Virginia, U.S.A.

12/11/2019 "The Human Machine Team: Building an AI Ready Workforce", Intelligence and National Security Alliance (INSA)/Defense One Briefing Panel, Washington D.C., U.S.A.

12/5/2018 "Artificial Intelligence Approaches for Wickedly Hard National Security Problems", Computer Science Colloquium Series Fall 2018, University of New Mexico, Albuquerque, New Mexico, U.S.A.

4/17/2018 "Computational Intelligence Approaches for Wickedly Hard National Security Problems", NNSA's Kansas City National Security Campus, Kansas City, Missouri, U.S.A.

6/4/2015 "A Tutorial on Hyper-Heuristics for the Automated Design of Algorithms", Sandia National Laboratories, Albuquerque, New Mexico, U.S.A.

6/5/2014 "Hyper-heuristics for the Tunable Automated Design of Custom Algorithms", Department 1461 Tech Meeting, Sandia National Laboratories, Albuquerque, New Mexico, U.S.A.

7/31/2013 "Automated Real-World Problem Solving: Navigating The Meta-Heuristical Black-Box Optimization Tapestry", Information Science and Technology Institute Seminar, Los Alamos National Laboratory, Los Alamos, New Mexico, U.S.A.

7/22/2013 "Automated Real-World Problem Solving: Navigating The Meta-Heuristical Black-Box Optimization Tapestry", Cyber Engineering Research Institute Seminar, Sandia National Laboratories, Albuquerque, New Mexico, U.S.A.

7/12/2013 "Automated Real-World Problem Solving: A Meta-Heuristical Black-Box Optimization Tapestry", Donders Institute, Radboud University Nijmegen, The Netherlands

7/5/2013 "Automated Real-World Problem Solving: Navigating The Meta-Heuristical Black-Box Optimization Tapestry", Leiden Institute of Advanced Computer Science, Leiden, The Netherlands

7/30/2012 "Evolutionary Computing 101", Cyber Engineering Research Institute Seminar, Sandia National Laboratories, Albuquerque, New Mexico, U.S.A.

7/30/2012 "Grand Challenges in Evolutionary Computing", Cyber Engineering Research Institute Seminar, Sandia National Laboratories, Albuquerque, New Mexico, U.S.A.

7/30/2012 "Automated Software Testing & Correction employing Evolutionary Computing and with potential Cyber Security applications ", Cyber Engineering Research Institute Seminar, Sandia National Laboratories, Albuquerque, New Mexico, U.S.A.

7/24/2012 "Evolutionary Computing 101", Center for Nonlinear Studies Seminar, Los Alamos National Laboratory, Los Alamos, New Mexico, U.S.A.

7/24/2012 "Grand Challenges in Evolutionary Computing", Center for Nonlinear Studies Seminar, Los Alamos National Laboratory, Los Alamos, New Mexico, U.S.A.

7/24/2012 "Current Research in EC: Linkage Learning in Evolutionary Algorithms and Automated Software Testing & Correction employing Evolutionary Computing", Center for Nonlinear Studies Seminar, Los Alamos National Laboratory, Los Alamos, New Mexico, U.S.A.

3/2009 "Grand Challenges in Evolutionary Computing", Computer Science Colloquium, Iowa State University, Ames, Iowa, U.S.A.

11/2008 "New Directions in Parameterless Evolutionary Algorithms", Symposium on New Directions in Evolutionary Algorithms, Donders Centre for Cognition, Radboud University Nijmegen, The Netherlands

11/2008 Introduction to, and Experimental Research in, Evolutionary Algorithms, Workshop, Donders Centre for Cognition, Radboud University Nijmegen, The Netherlands

3/2008 "A Co-Evolutionary Armsrace Methodology for Improving Cyber-Physical System Robustness - Distributed Power Electronics Devices", Fourth Annual Carnegie Mellon Conference on the Electricity Industry: Future Energy Systems: Efficiency, Security, Control, Carnegie Mellon University, Pittsburgh, Pennsylvania, U.S.A.

4/2007 "Real-world adversarial game-theoretic problem solving employing competitive coevolutionary armsraces: Critical infrastructure protection & automated software engineering", University of Missouri-St. Louis, St. Louis, Missouri, U.S.A.

3/2005 "How Darwin can help Increase the Robustness of our Nation's Electrical Power Grid: Evolving A Distributed Agent-Based SCADA System", Sandia National Laboratories, Albuquerque, New Mexico, U.S.A.

10/2004 "How to write grants", UMR Council of Graduate Students Grant Writing Workshop.

4/2004 "Can Darwin save the US electric power grid?", Truman State University ACM Chapter, Kirksville, Missouri, U.S.A.

5/2003 "Natural Computation: computational models inspired by nature", UMR Bioinformatics Working Group.

9/2002 "Applications of n-grams", UMR CS Department Colloquium Series.

1999 "Methods and Algorithms for Adaptive Information Filtering", CWI (National Research Institute for Mathematics and Computer Science of the Netherlands), Amsterdam, The Netherlands.

1999 "Methods and Algorithms for Adaptive Information Filtering", University of Maastricht, The Netherlands.

1998 "Adaptive Information Filtering", Symposium on the SION Digital Information Super Highway Theme, Amsterdam, The Netherlands.

Academic Activities

Course Development

2022-2024 Funded by NSF, created an introductory course on the nexus of AI and cyber security entitled "Artificial Intelligence for Security - Foundations (AI4Sec:FND)" (COMP 5970/6970).

2023, 2025 In collaboration with Joanie Morris, created and taught in 2023 a fully flipped classroom version of Discrete Structures (COMP 3240) including programming assignments; in 2025 taught two sections with over 120 students total of a further refined fully flipped classroom version of Discrete Structures (renumbered as COMP 2240).

2020 Created a course on the nexus of AI and cyber security entitled "Artificial Intelligence for Security (AI4Sec)" (COMP 7800).

2019-2020 Created a two-course sequence on evolutionary computing at Auburn University, consisting of a programming-intensive foundational senior/graduate course (COMP 5970/6970/6976) and a sequel advanced research methods course (COMP 7970).

2006-2008 Evolutionary Computing (CS 5401/6401 - formerly 348/448) - created a two-course sequence on evolutionary computing, consisting of a senior/graduate introductory course and an advanced, research emphasized, graduate course building on foundations laid in the intro course.

2006 Computer Security (CS 483) - completely revamped as an advanced graduate course centered around problem-based learning (PBL) in teams.

2004 Discrete Mathematics for Computer Science (CS 1200 - formerly 128/158) - instituted a LEAD Learning Center. In Spring Semester 2005 expanded this Learning Center to all sections and coordinated shared responsibility for it with the other section instructors.

2003 Introduction to Artificial Intelligence (CS 5400 - formerly 347) - completely revamped to provide in-depth, hands-on overview of search algorithms and heuristics with a major implementation component in a modern programming language; programming assignments in the second half of a semester progressively prepare the students for the S&T Artificial Intelligence Tournament.

2002 Advanced graduate course on Evolutionary Computing (CS 6401 - formerly 448) - provided an introduction to the general theory of Evolutionary Computing followed by individual research projects in which students implemented Evolutionary Algorithms, a number of which led to M.S. theses and conference papers. Besides traditional lectures, in-class case studies were performed in groups, and students gave presentations on their individual research projects.

Courses Taught at Auburn University

catalog title	*catalog number*	*year(s) taught*
Discrete Structures	COMP 2240/3240	2023,2025
Evolutionary Computing	COMP 5660/6660[1,2]	2019–2025
Research Methods in Evolutionary Computing	COMP 7660[1,3]	2020,2022,2024
Artificial Intelligence for Security: Foundations	COMP 5800/6800[1,4]	2022,2024
Artificial Intelligence for Security: R&D	COMP 7800/7806[1]	2021

[1]distance section offered, [2]initially offered as COMP 5970/6970/6976, [3]initially offered as COMP 7970/7976, [4]initially offered as COMP 5970/6970

Courses Taught at Missouri University of Science and Technology

S&T course #	*title*	*year(s) taught*
CS 1200[1]	Discrete Mathematics for Computer Science	2004-2005, 2009-2013, 2015
CS 5401[2,4]	Evolutionary Computing	2007-2013, 2015-2018
CS 5400[3,4]	Introduction to Artificial Intelligence	2003-2007, 2009-2014, 2016-2019
CS 401[4,5]	Cyber Security Research & Development	2006, 2008
CS 6400[6]	Advanced Topics in Artificial Intelligence	2002,2011,2013
CS 6401[7]	Advanced Evolutionary Computing	2003-2006, 2008-2010,2012, 2016

[1]formerly CS 128/158, [2]formerly CS 301/348, [3]formerly CS 347 [4]distance section offered, [5]formerly CS 483, [6]formerly CS 447, [7]formerly CS 401/448

Courses Taught at University of South Alabama

title	*year(s) taught*
Introduction to Scientific Computing in C	1997
Introduction to Scientific Computing in Fortran	1997

Professional Development

10-11/2020	2020 National Initiative for Cybersecurity Education (NICE) Conference
8/2016	Missouri S&T Grievance Panel Training
3/2006	Attended 1st CI2RCO Conference on Critical Information Infrastructure Protection, Rome, Italy
11/2005	Participated in Microsoft's Security Development Lifecycle-Information Technology (SDL-IT) Workshop for Academia, Curriculum/Course Development Workshop, Atlanta, Georgia
4/2005	Attended NSF Regional Grants Conference, Oakland, California
8/2004	Joined Missouri S&T's On Course Users Workgroup
4/2004	Attended the UM Grantsmanship Day in Columbia, Missouri
8/2003-5/2004	University of Missouri New Faculty Teaching Scholar
5/2003-5/2009	Member of Missouri S&T's Promotion & Tenure Writers Group
8/2002-5/2003	Member of Missouri S&T's Freshman Faculty Forum

Missouri S&T's Academic Administrators Professional Development

1/2017	Faculty Recruitment
11/2016	Leading by Influence
10/2016	Civil Rights and Equity
9/2016	Leveraging University Advancement
8/2016	Policies and Procedures for Academic Administrators

Students Supervised Summary

Total number of Ph.D. students graduated	6[1]
Total number of Ph.D. students active	7[2]
Total number of M.S. thesis students graduated	23[3]
Total number of M.S. thesis students active	0
Total number of undergraduate research students supervised	75
Total number of undergraduate research students active	0

[1] *3 co-supervised,* [2] *1 co-supervised,* [3] *3 co-supervised*

Ph.D. Students Supervised

Name	**Support**	**Topic**	**Status**
James Browning[1]	GRA	Evolutionary Algorithms Simulating Molecular Evolution (EASME)	Active
Kristian Dehaan		Automated Design of Secure Supply Chains	Active
Lisa Guntly	NSF GRFP	Age-Based Population Dynamics to Develop Autonomous Evolutionary Algorithms	Dropped Out

Sean Harris	Chancellor's Distinguished Fellowship	Coevolving Attacker and Defender Strategies for Satellite Constellations	Active
Joshua Herman[1]	SFS[2] Fellowship	Human-imitating agents for cyber security computer network emulations	Switched to M.S.
Ekaterina Holdener née Smorodkina	SNL[3],GTA	The Art of Parameterless Evolutionary Algorithms	Graduated 2008
Matt Johnson[1]	GTA	The Stored Non-Domination Level Multi-Objective Evolutionary Algorithm	Graduated 2007
Radha Kalyani[1]	SNL[3], GTA	Power Informatics: Optimal Control of UPFC devices w/ Sequential Quadratic Programming	Graduated 2007
Hugh Kwon		EC & RL	Active
Bradley Morgan		Network Security Optimization	Active
Jay Patel	IGP	Competitive Coevolution for Mega Satellite Constellation Security	Switched to M.S.
Aaron Pope	LANL[4]	Evolving Graph Algorithms for Cyber Security	Graduated 2020
Deacon Seals	ISC[2],GTA,GRA	Automated Design of Asymmetric-Game-Playing Agents and Rigorous Analysis Methods for Stochastic Algorithms on Relative-Performance Games	Active
William Siever[1]	SNL[3], Tang Fellowship, GTA	A Reinforcement Learning approach to controlling UPFC devices	Graduated 2007
Braden Tisdale	LANL[4]	Evolving Novel Evolutionary Algorithm Designs	Active
Joshua Wilkerson	ISC[2],GTA	Coevolutionary Automated Software Engineering	Graduated 2012

[1] *Co-supervised*, [2] *Scholarship for Service*, [3] *Sandia National Laboratories (`https://www.sandia.gov`)*, [4] *Los Alamos National Laboratories (`https://www.lanl.gov/`)*, [5] *Intelligent Systems Center (`https://isc.mst.edu`)*

M.S. Thesis Students Supervised

Name	**Support**	**Topic**	**Status**
Monu Bambroo	UMRB[2]	Intrusion Detection using Fuzzy Logic and Evolutionary Algorithm techniques	Graduated 2005
Jason Barbieri	KCNSC	Competitive Coevolution	Switched to non-thesis
Alex Berry[1]	DoD TACOM,GTA	Evolving Intelligent Agents for Adaptive First Responder Virtual Training	Graduated 2004
Alex Bertels	SNL CSMP	Hyper-heuristics for Program Understanding induced SAT	Graduated 2016
Jonathan Blount	SNL	Computational Intelligence Techniques for Malware Detection	Graduated 2011
John Chaloupek	SNL/DoE	Power Informatics: Evolutionary Optimization of FACTS device placements	Switched non-thesis
Ajith Cherukad Jose	ORNL	Evolutionary Optimization of Affective Computing	Graduated 2011
Rebecca Curtis	SNL	Automated Algorithm Targeting for Diverse Computational Architectures	Transferred to another school
Benjamin Daniels	LANL	Coevolving attackers and defenders for enterprise computer networks	Dropped out
Brian Goldman	GTA	Evolutionary Computing	Graduated 2012

Christopher Gore		A Time Series Classifier	Graduated 2008
Jason Cook	GTA	Autonomous Evolutionary Algorithms	Graduated 2010
Adam Harter	GTA	Asynchronous Parallel Evolutionary Algorithms, Hyper-heuristics	Graduated 2019
Ekaterina Holdener née Smorodkina[1]	GTA	Numerical and Parametrical Analysis of Higher Order Material Models	Graduated 2005
Jasenko Hosic	SNL CSMP	Reverse Engineering for Situational Awareness in Computing Networks	Graduated 2014
Nathaniel Kamrath	CSSI	Employing Supportive Coevolution for the Automated Design and Configuration of Evolutionary Algorithm Operators and Parameters	Graduated 2021
Rebecca Rivers	SNL CSMP	Reverse Engineering for Situational Awareness in Computing Networks	Graduated 2015
André Nwamba	GTA	Automated Offspring Sizing in Evolutionary Algorithms	Graduated 2009
Kasthurirangan Parthasarathy	UMRB[2]	Bio-inspired Approaches for Critical Infrastructure Protection: Application of Clonal Selection Principle for Intrusion Detection and FACTS Placement	Graduated 2005
Rohit Parti	UMRB[2]	An Evolutionary Computation approach to Intrusion Response	Graduated 2004
Michael Prince	KCNSC	Plant Scheduling & Optimization	Switched to non-thesis
Samuel Richter	GTA	Evolving Selection for Evolutionary Computation	Graduated 2019
Cody Roberts	AFRL	Sat-Tycoon AI Gym	Graduated 2023
George Rush	LANL	Computational Intelligence Approaches for Cyber Security	Graduated 2015
Travis Service	SNL/DoE,GTA	Co-Optimization: A Generalization of Coevolution	Graduated 2008
Jeffery Shelburg	SNL CSMP	Clustering Enhanced Learning Classifier Systems	Graduated 2013
Joshua Tuggle		Evolving SAT solvers	Switched non-thesis
Christopher Walker[1]		A Two-Phase Algorithm for the Registration of Fractured Surfaces	Graduated 2005
Joshua Wilkerson	ISC[3],GTA	Co-Evolutionary Automated Software Correction: A Proof of Concept	Graduated 2008

[1] *Co-supervised*, [2] *University of Missouri Research Board*, [3] *Intelligent Systems Center*

Undergraduate Research Students Supervised

Name	**Support**	**Topic**	**Year**
Kyle Ackerman	BONSAI Lab	Galaxy Virtualized Network Emulation	2023-2024
Elizabeth Babb[1]	MRO-W[2]	Indoor Air Quality Simulator	2007
Mauren Baker	SFS	CEADS-LIN AI Agent API	2022
Jason Barbieri	KCNSC	Automated Plant Modeling, Optimization, and Security (APMOS)	2021
Alex Bertels	OURE[3]	Automated Fitness Guided Fault Localization	2011-2012
Alex Bertels	OURE[3]	Scalable Coevolutionary Automated Software Correction	2012-2013
Alex Bertels	OURE[3]	User-Friendly Coevolutionary Automated Software Correction	2013-2014

James Bridges	OURE[3]	Coevolutionary Automated Software Correction	2011-2012
Andrew Brown	OURE[3]	Creating Graphical User Interfaces for the Virtual Facilitator	2011-2012
Bret Brown	OURE[3]	Local search optimization of FACTS device placement for improving the national power grid	2004-2005
Matthew Bruns		Artificial Intelligence Game Framework	2005
Timothy Coalson		Artificial Intelligence Game Assessment	2008
Jeremy Daugherty	OURE[3]	Cyberinfrastructure for the Automated Partial Credit Grading System	2012-2013
Joshua Eads	OURE[3]	Multi-Agent modeling of cooperative distributed flow-control devices for transport network applications	2006-2007
Joshua Eads[1]	OURE Fellow[5]	Deriving Gas-Phase Exposure History through Computationally Evolved Inverse Diffusion Analysis	2007-2008
Joshua Eads	OURE[3]	Artificial Intelligence Game Framework	2008
Matthew Entrekin	OURE[3]	Evolutionary Computation Library	2008-2009
Jacob Gardner	OURE[3]	Investigation of published evolutionary algorithm performance claims	2011-2012
Adam Gausmann	CSSI[6]	Virtual Network Emulation Infrastructure	2017-2019
Steven Giangreco	OURE[3],CREU[4]	Scalable Automated Tailoring of SAT Solvers	2018
Jasmine Glaese née Bowles	CREU[4],OURE[3]	Computer Science Recruitment for the 21st Century	2007-2008
Jasmine Glaese née Bowles	CREU[4],OURE[3]	Computer Science Recruitment for the 21st Century: Phase III	2008-2009
Brian Goldman	OURE[3]	Evolutionary Computation Library	2008-2009
Janet Guntly[1]	MRO-W[2]	Indoor Air Quality Simulator	2008
Janet Guntly	CREU[4],OURE[3]	Computer Science Recruitment for the 21st Century: Phase III	2008-2009
Lisa Guntly	CREU[4],OURE[3]	Computer Science Recruitment for the 21st Century	2007-2008
Patrick Hammond		Artificial Intelligence Game Framework	2005
Sean Harris	OURE[3]	A Comparison of Genetic Programming Variants for Hyper-Heuristics	2014-2015
Joshua Herman		eSHANCS: Evolving Simulated Human Activity on Networked Computer Systems	2015-2016
Jesse Hughes	OURE[3]	Hyper-heuristics for Targeting Computational Architectures	2015-2016
Marketa Illetskova	OURE[3]	The Automated Design of SAT Solvers Employing Asynchronous Parallel Hyper-Heuristics	2016-2017
Ethan Johnson	ACRC	Galaxy: A Virtualized Network Emulation for Adversarial AI Agents in Cybersecurity	2020
Nathaniel Kamrath	OURE[3]	Evolutionary Computation for the Automated Design of Algorithms	2013-2014
Emily Kimbrell	URF[7],BioAI	Enhancing the Playability of Sat-Tycoon: Improving Data Representation and User Interfaces in a Multi-Player Strategy Simulation Game	2023-2024
Lauren Kroenung	OURE[3]	Automated Software Correction: Visualization & Parsing	2014-2015
Joseph Kurtz	OURE[3]	Balancing Limited Resources For Speech Transcription on Mobile Devices	2011-2012
Ashley Lang[1]	MRO-W[2]	Indoor Air Quality Simulator	2007
Zach Leggett	ACRC	Galaxy: A Virtualized Network Emulation for Adversarial AI Agents in Cybersecurity	2020
Kristen Loesch	CREU[4],OURE[3]	Improving Computer Science recruitment with emphasis on female recruitment	2006-2007

Amber Loftis[1]	MRO-W[2]	Indoor Air Quality Simulator	2007-2008
Kevin Markussen		Artificial Intelligence Game Framework	2005
Charissa Mathis	CREU[4],OURE[3]	Computer Science Recruitment for the 21st Century: Phase III	2008-2009
George Mausshardt	OURE[3]	Adaptable User-Friendly Math-Interface for Automated Partial Credit Grading	2012-2013
Andrew McGehee		Toward Stable Reinforcement Learning through Ensembled Directed Mutation	2020
Clay McGinnis	CSSI[6]	Network Emulation & Intelligent Agent Visualization	2018-2019
Vicki McLendon	ACRC	Galaxy Documentation	2021-2022
Eric Mertens	OURE[3]	Grid Computing: Deployment of BOINC on the UMR Campus	2005-2006
Eric Michalak	CSSI[6]	Virtual Network Emulation Infrastructure	2016-2017
Justin Miller	OURE[3]	Computer Network Status and Vulnerability Assessment & Visualization Tool Development	2004-2005
Rachel Million	OURE[3],CREU[4]	Scalable Automated Tailoring of SAT Solvers	2018
Hampton Morgan	ACRC	ACRC Lab Manager	2020 - 2022
Benjamin Murrell	OURE[3]	Artificial Intelligence Game Framework	2008
Mark Myers	OURE[3]	Melding Computational Game Theory and Formal Models in Cyber Security	2016-2017
Matthew Nuckolls		Virtual Facilitation of Human Group Interaction employing a Crowd Sourcing based Learning Classifier System	2010
Timothy Olson	OURE[3]	Artificial Intelligence Game Framework	2008
Vincent Pizzo	OURE[3]	Creating A Universal Virtual Facilitation Bot Client Interface	2011-2012
Michael Prince	KCNSC	EC	2020
Thomas Reese	OURE[3]	Investigation and development of black box search benchmarks	2011-2012
Hannah Reinbolt	CSSI[6]	Cybersecurity Agent API	2017-2019
William Reynolds	OURE[3]	Domain Specific Language Creation for Virtual Facilitation Role Play	2011-2012
Lyndsey Rice		CEADS-LIN	2023
Samuel Richter	OURE[3]	Cyber Security Research Infrastructure for Coevolving Adversaries	2015-2016
Christopher Roush	OURE[3]	Evolutionary Computation Library	2008-2009
George Rush	OURE[3]	Evolutionary Algorithm Software Factory: Phase II	2009-2010
Chelsea Sanders	OURE[3]	Creating An Automated Partial Credit Grading Engine	2011-2012
Kevin Schoonover	CSSI[6],OURE[3]	Virtual Network Emulation Infrastructure	2017-2019
Travis Service		Artificial Intelligence Game Framework	2005
Brian Shaver		Artificial Intelligence Game Framework	2005
Jeffrey Shelburg	OURE[3]	Cyberinfrastructure for Virtual Facilitation of Human Group Interaction	2010-2011
Jared Simon	OURE[3]	Cyberinfrastructure for Coevolutionary Automated Software Correction	2010-2011
Luke Simon	OURE[3]	Visualization for Cyber Security Practitioners	2014-2015
Alex Smith	OURE[3]	Creating A Scalable Automated Partial Credit Grading Engine	2012-2013
Cameron Stanford	AU-CAICE	ATLAS-N	2025
Margret Steele	OURE[3]	Developing Platform-Independent Server for Virtual Facilitator	2011-2012

Braden Tisdale	CSSI	NAGA	2020
Chase Tuggle	NSF	Galaxy Virtualized Network Emulation	2023-2024
Charles Tullock	OURE[3]	AI Robotic Soccer Development Platform	2006-2007
Kathleen Venhaus	OURE[3]	Cyberinfrastructure for the Automated Partial Credit Grading System	2011-2012
Michael Virag	OURE[3]	Modifying Symbolic Solvers for Automated Partial Credit Grading	2010-2011
Tiffany Werckmann	OURE[3]	User-Friendly Math-Interface for Automated Partial Credit Grading	2011-2012
Jessica Williams	CREU[4],OURE[3]	Computer Science Recruitment for the 21st Century	2007-2008
Michael Wisely	OURE[3]	User-Friendly Math-Interface for Automated Partial Credit Grading	2010-2011
Laura Woodard	CREU[4],OURE[3]	Improving Computer Science recruitment with emphasis on female recruitment	2006-2007
Evan Wright	OURE[3]	Power Informatics: graph theoretic algorithms for modeling flow control	2006-2007
Matthew Zieger	OURE[3]	Reverse Engineering for Cyber Security	2013-2014

[1] *Co-supervised*, [2] *Multidisciplinary Research Opportunities for Women*, [3] *Opportunities for Undergraduate Research Experience*, [4] *Collaborative Research Experience for Undergraduates*, [5] *Opportunities for Undergraduate Research Experience Fellow Program*, [6] *Los Alamos National Laboratory/Missouri S&T Cyber Security Sciences Institute*, [7] *Auburn University Undergraduate Research Fellowship*

Academic Service

Auburn University

2019-current Variety of curricula development & certification activities focused primarily on cyber security and artificial intelligence

3/2025 Faculty Judge, 2025 Auburn Research Student Symposium

6/2020-12/2024 Faculty Advisor, ACM Ethical Hacking Club

3/2024 Faculty Judge, 2024 Auburn Research Student Symposium

3/2023 Faculty Judge, 2023 Auburn Research Student Symposium

10/2020 Faculty Judge, 2020 Finish in Five Competition, Council of Engineering Graduate Students

11/7/2019 Faculty Judge, 2019 Graduate Engineering Research Showcase

Missouri S&T - Department of Computer Science Service (sorted by start date)

9/2018-5/2019 Chair, Open-Rank Tenure-Track/Tenured Faculty Search Committee

9/2018-1/2019 Chair, Ad Hoc Non-Tenure-Track Teaching Faculty Promotion Committee

10/2017-8/2019 Faculty Advisor, ACM Student Chapter SIG-Game

10/2017-12/2017 Member, OSA-III Staff Search Committee

5/2017-12/2017 Chair, Assistant Teaching Professor Search Committee

10/2016-5/2017 Vice-Chair, Department Chair Search Committee

8/2016-9/2016 Chair, OSA-IV Staff Search Committee

12/2015-12/2016 Member, Assistant Teaching Professor Search Committee

9/2015-7/2016 Member, Peer Teaching Evaluation Committee

11/2013-10/2014 Chair, Assistant Teaching Professor Search Committee

11/2012-8/2013 Member, Department Chair Search Committee

8/2011-7/2014 OURE / Undergraduate Research Coordinator

6/2011-7/2014, 7/2016-6/2019 Chair, Undergraduate Committee

9/2009-5/2011 Member, (ABET) Accreditation Committee

2008-2013 Chair, Publicity Committee

2008-2009 Member, Diversity Committee

2007-2009 Member, Graduate Practices and Policies Committee

2007 Member, Space Allocation Committee

2006-2007 Member, Chair Search Committee

2004-2013 Library Liaison

2004 Member, Ad Hoc Undergraduate Omnibus Curriculum Committee

2003-2008 Member, Curriculum Committee

2003-8/2019 Faculty Advisor, ACM Student Chapter SIG-Security

Missouri S&T - Campus Level Service (sorted by start date)

8/2018-7/2019 Member, Missouri S&T Tenure (Policy) Committee

1/2018-5/2018 Member, Ad-Hoc Committee to Review Freshman Curriculum Experience

7/2016-6/2018 Alternate Member, Missouri S&T Grievance Resolution Panel Committee

11/2015-7/2019 Member, Discipline Specific Curricula Committee - Engineering

10/2015-9/2016 Member, Faculty Service Awards Committee

9/2015-7/2019 Chair, Missouri S&T Computer Security Task Force

12/2014-9/2018 Member, Cynthia Tang Missouri Distinguished Professor in Computer Engineering Search Committee

8/2013-7/2014 Senator, Faculty Senate

5/2013-8/2019 Chair, Faculty Senate Rules, Procedures, and Agenda Committee's Ad Hoc Add Drop Procedure Committee

3/2013 Appointed to Provost's Course Renumbering Committee

11/2010-7/2014 Chair, Campus Curricula Committee

10/2009-7/2014 Chair, Discipline Specific Curricula Committee - Sciences

10/2009-10/2010 Member, Campus Curricula Committee

11/2008-8/2019 Member, Missouri S&T Research Computing Task Force

10/2008-6/2010 Chair, Faculty Senate Standing Committee on Library and Learning Resources

9/2008-9/2009, 8/2014-11/2015 Member, Discipline Specific Curricula Committee - Sciences

2006-2007 Rotating Coordinator, Promotion & Tenure Writers Group

2004-2006 Member, Academic Council Ad Hoc Committee on Conflict of Interest

2003-9/2015 Member, Missouri S&T Computer Security Task Force

2003-2005 Member, College of Arts & Sciences Curriculum Committee

Leiden University

1993-1996 Student Member, Computer Science & Math Advisory Committee

1993-1996 Student Member, Computer Science Department Faculty Council

1991-1996 Student Member, Computer Science Department Teaching Committee

1991-1994 Student Member, Math Department Teaching Committee

Academic Community Service

2015- Associate Editor, Evolutionary Computing area, Springer's Natural Computing journal

2007- Serve periodically as NSF/CISE grant proposal panelist

2003-2011 Serve periodically as University of Missouri Research Board grant proposal reviewer

1993-1995 Student Member, Dutch National Computer Science Advisory Board

Conferences

2026 Program Committee, Technical Symposium on Computer Science Education (SIGCSE TS) 2026

2025 Co-Chair, 15th Workshop on Evolutionary Computation for the Automated Design of Algorithms (ECADA) @ GECCO 2025 - the 27th ACM Annual Conference on Genetic and Evolutionary Computation

2025 Program Committee, Genetic Algorithms Track, GECCO 2025 - the 27th ACM Annual Conference on Genetic and Evolutionary Computation

2024 Program Committee, 18th International Conference on Parallel Problem Solving from Nature (PPSN 2024)

2024 Co-Chair, 14th Workshop on Evolutionary Computation for the Automated Design of Algorithms (ECADA) @ GECCO 2024 - the 26th ACM Annual Conference on Genetic and Evolutionary Computation

2024 Co-Instructor, Generative Hyper-heuristics Tutorial @ GECCO 2024 - the 26th ACM Annual Conference on Genetic and Evolutionary Computation

2024 Program Committee, Genetic Algorithms Track, GECCO 2024 - the 26th ACM Annual Conference on Genetic and Evolutionary Computation

2023 Co-Chair, 13th Workshop on Evolutionary Computation for the Automated Design of Algorithms (ECADA) @ GECCO 2023 - the 25th ACM Annual Conference on Genetic and Evolutionary Computation

2023 Co-Instructor, Generative Hyper-heuristics Tutorial @ GECCO 2023 - the 25th ACM Annual Conference on Genetic and Evolutionary Computation

2023 Program Committee, Genetic Algorithms Track, GECCO 2023 - the 25th ACM Annual Conference on Genetic and Evolutionary Computation

2022 Program Committee, 17th International Conference on Parallel Problem Solving from Nature (PPSN 2022)

2022 Co-Chair, 12th Workshop on Evolutionary Computation for the Automated Design of Algorithms (ECADA) @ GECCO 2022 - the 24th ACM Annual Conference on Genetic and Evolutionary Computation

2022 Co-Instructor, Generative Hyper-heuristics Tutorial @ GECCO 2022 - the 24th ACM Annual Conference on Genetic and Evolutionary Computation

2022 Program Committee, Genetic Algorithms Track, GECCO 2022 - the 24th ACM Annual Conference on Genetic and Evolutionary Computation

2021 Co-Chair, 11th Workshop on Evolutionary Computation for the Automated Design of Algorithms (ECADA) @ GECCO 2021 - the 23rd ACM Annual Conference on Genetic and Evolutionary Computation

2021 Co-Instructor, Hyper-heuristics Tutorial @ GECCO 2021 - the 23rd ACM Annual Conference on Genetic and Evolutionary Computation

2021 Program Committee, Genetic Algorithms Track, GECCO 2021 - the 23rd ACM Annual Conference on Genetic and Evolutionary Computation

2020 Program Committee, Parallel Problem Solving from Nature (PPSN 2020)

2020 Program Committee, Workshop on Secure Learning, International Joint Conference on Neural Networks (IJCNN 2020)

2020 Co-Chair, 10th Workshop on Evolutionary Computation for the Automated Design of Algorithms (ECADA) @ GECCO 2020 - the 22nd ACM Annual Conference on Genetic and Evolutionary Computation

2020 Co-Instructor, Hyper-heuristics Tutorial @ GECCO 2020 - the 22nd ACM Annual Conference on Genetic and Evolutionary Computation

2020 Program Committee, Genetic Algorithms Track, GECCO 2020 - the 22nd ACM Annual Conference on Genetic and Evolutionary Computation

2019 Co-Chair, 9th Workshop on Evolutionary Computation for the Automated Design of Algorithms (ECADA) @ GECCO 2019 - the 21st ACM Annual Conference on Genetic and Evolutionary Computation

2019 Co-Instructor, Hyper-heuristics Tutorial @ GECCO 2019 - the 21st ACM Annual Conference on Genetic and Evolutionary Computation

2019 Program Committee, Genetic Algorithms Track, GECCO 2019 - the 21st ACM Annual Conference on Genetic and Evolutionary Computation

2018 Co-Chair, 8th Workshop on Evolutionary Computation for the Automated Design of Algorithms (ECADA) @ GECCO 2018 - the 20th ACM Annual Conference on Genetic and Evolutionary Computation

2018 Co-Instructor, Hyper-heuristics Tutorial @ GECCO 2018 - the 20th ACM Annual Conference on Genetic and Evolutionary Computation

2018 Program Committee, Genetic Algorithms Track, GECCO 2018 - the 20th ACM Annual Conference on Genetic and Evolutionary Computation

2018 Program Committee, PPSN 2018 - the 15th International Conference on Parallel Problem Solving from Nature

2017 Co-Chair, 7th Workshop on Evolutionary Computation for the Automated Design of Algorithms (ECADA) @ GECCO 2017 - the 19th ACM Annual Conference on Genetic and Evolutionary Computation

2017 Co-Instructor, Hyper-heuristics Tutorial @ GECCO 2017 - the 19th ACM Annual Conference on Genetic and Evolutionary Computation

2017 Program Committee, Genetic Algorithms Track, GECCO 2017 - the 19th ACM Annual Conference on Genetic and Evolutionary Computation

2016 Co-Chair, 6th Workshop on Evolutionary Computation for the Automated Design of Algorithms (ECADA) @ GECCO 2016 - the 18th ACM Annual Conference on Genetic and Evolutionary Computation

2016 Co-Instructor, Hyper-heuristics Tutorial @ GECCO 2016 - the 18th ACM Annual Conference on Genetic and Evolutionary Computation

2016 Co-Organizer, Combinatorial Black Box Optimization Competition (CBBOC) @ GECCO 2016 - the 18th ACM Annual Conference on Genetic and Evolutionary Computation

2016 Program Committee, Genetic Algorithms Track, GECCO 2016 - the 18th ACM Annual Conference on Genetic and Evolutionary Computation

2016 Program Committee, PPSN 2016 - the 14th International Conference on Parallel Problem Solving from Nature

2016 Program Committee, COMPSAC 2016 - the 40th Annual IEEE International Computers, Software & Applications Conference

2015 Co-Chair, 5th Workshop on Evolutionary Computation for the Automated Design of Algorithms (ECADA) @ GECCO 2015 - the 17th ACM Annual Conference on Genetic and Evolutionary Computation

2015 Co-Chair, 2nd Workshop on Metaheuristic Design Patterns (MetaDeeP) @ GECCO 2015 - the 17th ACM Annual Conference on Genetic and Evolutionary Computation

2015 Co-Instructor, Hyper-heuristics Tutorial @ GECCO 2015 - the 17th ACM Annual Conference on Genetic and Evolutionary Computation

2015 Co-Organizer, Combinatorial Black Box Optimization Competition (CBBOC) @ GECCO 2015 - the 17th ACM Annual Conference on Genetic and Evolutionary Computation

2015 Program Committee, Genetic Algorithms Track, GECCO 2015 - the 17th ACM Annual Conference on Genetic and Evolutionary Computation

2015 Program Committee, NasBASE 2015 - the First North American Search Based Software Engineering Symposium

2015 Program Committee, COMPSAC 2015 - the 39th Annual IEEE International Computers, Software & Applications Conference

2014 Program Committee, PPSN 2014 - the 13th International Conference on Parallel Problem Solving from Nature

2014 Program Committee, Genetic Algorithms Track, GECCO 2014 - the 16th ACM Annual Conference on Genetic and Evolutionary Computation

2014 Program Committee, COMPSAC 2014 - the 38th Annual IEEE International Computers, Software & Applications Conference

2013 Co-Chair, Genetic Algorithms Track - GECCO 2013 - the 15th ACM Annual Conference on Genetic and Evolutionary Computation

2012 Co-Chair, Genetic Algorithms Track - GECCO 2012 - the 14th ACM Annual Conference on Genetic and Evolutionary Computation

2011 Chair, Doctoral Symposium, COMPSAC 2011 - the 35th Annual IEEE International Computers, Software & Applications Conference

2011 Reviewer, IEEE CEC 2011 - Congress on Evolutionary Computation

2010 Late Breaking Papers Chair, ACM GECCO 2010 - Genetic and Evolutionary Computation Conference

2010 Program Committee, Genetic Algorithms Track, ACM GECCO 2010 - Genetic and Evolutionary Computation Conference

2010 Reviewer, IEEE CEC 2010 - Congress on Evolutionary Computation

2009 Program Committee, Genetic Algorithms Track, ACM GECCO 2009 - Genetic and Evolutionary Computation Conference

2009 Program Committee, IEEE CEC 2009 - Congress on Evolutionary Computation

2008 Program Committee, Genetic Algorithm Track, ACM GECCO 2008 - Genetic and Evolutionary Computation Conference

2008 Program Committee, SIS 2008 - IEEE Swarm Intelligence Symposium

2008 Program Committee, IEEE COMPSAC 2008 - The 32nd Annual International Computer Software and Applications Conference

2007 Program Committee, ISA 2007 - IADIS Intelligent Systems and Agents 2007

2005 Program Committee, FEA 2005 - 6th International Workshop on Frontiers in Evolutionary Algorithms (JCIS 2005 conference track)

2004 Program Committee, IEEE IRE-2004 - 2004 IEEE International Conference on Information Reuse and Integration

Journal Referee
ACM Computing Surveys, Artificial Intelligence, Genetic Programming and Evolvable Machines, IEEE Transactions on Evolutionary Computing, Natural Computing, IEEE Software, IEEE Transactions on Control Systems Technology, IEEE Transactions on Knowledge and Data Engineering, IEEE Transactions on Neural Networks, IEEE Transactions on Systems, Man, and Cybernetics–Part C: Applications and Reviews, International Journal of Smart Engineering System Design, Journal of Global Optimization, Computing, Journal of Systems and Software

Textbook Reviews
McGraw-Hill Higher Education, Oxford University Press

Professional Affiliations

- Senior Member, Association for Computing Machinery (ACM)
  - ACM Special Interest Group on Genetic and Evolutionary Computation (SIGEVO)
  - ACM Special Interest Group on Artificial Intelligence (SIGART)
  - ACM Special Interest Group on Computer Science Education (SIGCSE)
- Senior Member, Institute of Electrical and Electronics Engineers (IEEE)
  - IEEE Computer Society
  - IEEE Computational Intelligence Society