

Amulya Yadav

Assistant Professor
College of Information Sciences and Technology
Pennsylvania State University
<http://amulyayadav.com>

E368 Westgate Building
University Park, PA 16802
+1 (814) 865 6375
amulya@psu.edu

RESEARCH INTERESTS

Artificial Intelligence, Machine Learning, Social Network Analysis, Computational Game Theory, Mechanism Design, Multiagent Systems and Applications, Large-scale and Robust Optimization.

APPOINTMENTS

PNC Technologies Career Development Assistant Professor College of Information Sciences and Technology Penn State University	2020 – Present
Associate Director (Programs) Center for Socially Responsible Artificial Intelligence Penn State University	2020 – Present
Affiliate Faculty Center for Artificial Intelligence in Society University of Southern California	2018 – Present
Assistant Professor College of Information Sciences and Technology Penn State University	2018 – 2020
Graduate Research Assistant Department of Computer Science University of Southern California (USC)	2013 – 2018
Software Development Engineer Amazon Inc.	2012– 2013

EDUCATION

Ph.D., Computer Science University of Southern California (USC) <i>Advisor:</i> Prof. Milind Tambe <i>Dissertation:</i> AI for Low-Resource Communities: Influence Maximization in an Uncertain World	2013 – 2018
B.Tech., Computer Science & Engineering Indian Institute of Technology (IIT), Patna Ranked 2nd out of 120 students	2008 – 2012

SELECT HONORS & AWARDS (BY YEAR)

2022

1. **AI Societal Impact Award** Our deployed work on AI for improving maternal and neonatal health in Kenya was awarded the AI Societal Impact Award by the Penn State Center for AI Foundations & Engineered Systems.

2021

2. **Community Engagement and Scholarship Award** I was honored with an exemplary designation in the Penn State Community Engagement and Scholarship Award for the year 2021.
3. **ICML Algorithmic Recourse 2021 Best Paper Award Runner Up** My paper on “*CounterNet: End-to-End Training of Counterfactual Aware Prediction.*” was adjudged Runner up in the Best Paper Award at the ICML 2021 Workshop on Algorithmic Recourse (*out of 21 papers*).

2020

4. **MD4SG 2020 Best Student Paper Award** My MD4SG 2020 paper “*Large-scale clinical trial of an AI-augmented intervention for HIV prevention in youth experiencing homelessness.*” won the Best Student Paper Award (*out of 118 papers*).

2017

5. **AAMAS 2017 Best Paper Nomination** My AAMAS 2017 paper “*Influence Maximization in the Field: The Arduous Journey from Emerging to Deployed Application*” won the Best Paper Nomination (*out of 288 papers*).
6. **AAAI 2017 Best Video & Best Student Video** My AAAI 2017 video submission “*HEALER: Using AI to Raise HIV Awareness among Homeless Youth*” was awarded the Best Video and Best Student Video Award (*out of 34 videos*).
7. **USC Best Research Assistant 2017** Won the Best Research Assistant Award in USC’s Computer Science Department for the academic year 2016-2017 (*out of 245 students*).

2016

8. **AAMAS 2016 Best Student Paper Award** My AAMAS 2016 paper “*Using Social Networks to Aid Homeless Shelters: Dynamic Influence Maximization under Uncertainty*” was awarded the Best Student Paper Award (*out of 348 papers*).
9. **IDEAS Visionary Paper Award** My IDEAS 2016 paper “*POMDPs for Assisting Homeless Shelters: Computational and Deployment Challenges*” was awarded the Most Visionary Paper Award (*out of 14 papers*).

2015

10. **Incredible Innovations for Social Good 2015** My IAAI 2015 work on influence maximization and POMDPs was highlighted by Mashable.com as one of 26 incredible innovations that improved the world in 2015.
11. **AAAI 2015 Press Conference** My IAAI 2015 paper was one of four papers that was highlighted in the AAAI 2015 press conference (*out of 640 papers*).

PUBLICATIONS

Refereed Journal & Conference Publications

37. Wenbo Zhang, Hangzhi Guo, Prerna Ranganathan, Jay Patel, Sathyanath Rajasekharan, Nidhi Danayak, Manan Gupta, and **Amulya Yadav**. A Continual Pre-training Approach to Tele-Triaging Pregnant Women in Kenya. In *Proceedings of the 37th AAAI Conference on Artificial Intelligence*, 2023.
36. Thanh Nguyen, and **Amulya Yadav**. The Risk of Attacker Behavioral Learning: Can Attacker Fool Defender under Uncertainty? In *Proceedings of the 13th International Conference on Decision and Game Theory for Security (GameSec)*, 2022.
35. Maryam Tabar, Wooyong Jung, **Amulya Yadav**, Owen Wilson Chavez, Ashley Flores, and Dongwon Lee. WARNER: Weakly-Supervised Neural Network to Identify Eviction Filing Hotspots in the Absence of Court Records. In *Proceedings of the 31st ACM International Conference on Information and Knowledge Management (CIKM)*, 2022.
34. Maryam Tabar, Wooyong Jung, **Amulya Yadav**, Owen Wilson Chavez, Ashley Flores, and Dongwon Lee. Forecasting the Number of Tenants At-Risk of Formal Eviction: A Machine Learning Approach to Inform Public Policy. In *Proceedings of the 31st International Joint Conference on Artificial Intelligence (IJCAI-ECAI)*, 2022.
33. Thanh Nguyen, and **Amulya Yadav**. A Complete Analysis on the Risk of Using Quantal Response: When Attacker Maliciously Changes Behavior under Uncertainty. In *Games 2022*, 13, 81.
32. Maryam Tabar, Dongwon Lee, David Hughes, **Amulya Yadav**. Mitigating Low Agricultural Productivity of Smallholder Farms in Africa: Time-Series Forecasting for Environmental Stressors. In *Proceedings of the 34th AAAI Conference on Innovative Applications of Artificial Intelligence (IAAI)*, 2022.
31. Eric Rice, Bryan Wilder, Laura Onasch-Vera, Graham DiGuisseppi, Robin Petering, Chyna Hill, **Amulya Yadav**, Sung-Jae Lee and Milind Tambe. A Peer-Led, Artificial Intelligence-Augmented Social Network Intervention to Prevent HIV among Youth Experiencing Homelessness. In *Journal of Acquired Immunodeficiency Syndrome (JAIDS)*, 2021. Vol. 88, Issue S1, pp. S20-S26.
30. Maryam Tabar, Jared Gluck, Anchit Goyal, Fei Jiang, Derek Morr, Annalyse Kehs, Dongwon Lee, David Hughes, **Amulya Yadav**. A PLAN for Tackling the Locust Crisis in East Africa: Harnessing Spatiotemporal Deep Models for Locust Movement Forecasting. In *Proceedings of the 27th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*, 2021.
29. Yu Liang, **Amulya Yadav**. Let the DOCTOR Decide Whom to Test: Adaptive Testing Strategies to Tackle the COVID-19 Pandemic. In *Proceedings of the 20th International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, 2021.
28. Zi-Yi Dou, Anamika Barman-Adhikari, Fei Fang, **Amulya Yadav**. Harnessing Social Media to Identify Homeless Youth At-Risk of Substance Use. In *Proceedings of the 35th AAAI Conference on Artificial Intelligence*, 2021.
27. Bryan Wilder, Laura Onasch-Vera, Graham Diguiseppi, Robin Petering, Chyna Hill, **Amulya Yadav**, Eric Rice and Milind Tambe. Clinical trial of an AI-augmented intervention for HIV prevention in youth experiencing homelessness. In *Proceedings of the 35th AAAI Conference on Artificial Intelligence*, 2021.
26. Maryam Tabar, Heesoo Park, Stephanie Winkler, Dongwon Lee, Anamika Barman-Adhikari, **Amulya Yadav**. Identifying homeless youth at-risk of substance use disorder: Data driven insights for policymakers. In *Proceedings of the 26th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*, 2020

25. **Amulya Yadav**, Roopali Singh, Nikolas Siapoutis, Anamika Barman-Adhikari, Yu Liang. Optimal and Non-Discriminative Rehabilitation Program Design for Opioid Addiction Among Homeless Youth. In *Proceedings of the 29th International Joint Conference on Artificial Intelligence (IJCAI)*, 2020
24. Thanh Nguyen, Nam Vu, **Amulya Yadav**, Uy Nguyen. Decoding the Imitation Security Game: Handling Attacker Imitative Behavior Deception. In *Proceedings of the 24th European Conference on Artificial Intelligence (ECAI)*, 2020
23. Hangzhi Guo, Alexander Woodruff, **Amulya Yadav**. Improving Lives of Indebted Farmers Using Deep Learning: Predicting Agricultural Produce Prices Using Convolutional Neural Networks. In *Proceedings of the 32rd Conference on Innovative Applications of Artificial Intelligence (IAAI)*, 2020
22. Aida Rahmattalabi, Phebe Vayanos, Anthony Fulginiti, Eric Rice, Bryan Wilder, **Amulya Yadav**, Milind Tambe. Exploring Algorithmic Fairness in Robust Graph Covering Problems. In *Proceedings of the 33rd Conference on Neural Information Processing Systems (NeurIPS)*, 2019
21. Thanh Nguyen, **Amulya Yadav**, Branislav Bosansky, Yu Liang. Tackling Sequential Attacks in Security Games. In *Proceedings of the 10th Conference on Decision and Game Theory for Security (Gamesec)*, 2019
20. Ramaravind Kommiya Mothilal, **Amulya Yadav**, Amit Sharma. Optimizing Peer Referrals for Public Awareness using Contextual Bandits. In *Proceedings of the 2nd ACM International Conference on Computing Sustainable Societies (COMPASS)*, 2019
19. Tracy Jia Shen, Robert Cowell, Adita Gupta, Thai Le, **Amulya Yadav**, Dongwon Lee. How Gullible Are You? Predicting Susceptibility to Fake News. In *Proceedings of the 11th ACM International Conference on Web Science Conf. (WebSci)*, 2019
18. Shahrzad Gholami, **Amulya Yadav**, Long Tran-Thanh, Bistra Dilkina, Milind Tambe. Dont Put All Your Strategies in One Basket: Playing Green Security Games with Imperfect Prior Knowledge. In *Proceedings of the 18th International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, 2019
17. Eric Rice, Robin Petering, Amanda Yoshioka-Maxwell, Jaih Craddock, Darlene Woo, Nicole Wilson, Laura Onasch-Vera, Bryan Wilder, **Amulya Yadav** and Milind Tambe. Piloting the Use of Artificial Intelligence to Enhance HIV Prevention Interventions for Youth Experiencing Homelessness. In *Journal of the Society for Social Work and Research 2018 Vol. 9, Issue 4, pp. 551-573*.
16. **Amulya Yadav**, Ritesh Noothigattu, Eric Rice, Laura Onasch-Vera, Leandro Marcolino, Milind Tambe. Please be an Influencer? Contingency-Aware Influence Maximization. In *Proceedings of the 17th International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, 2018.
15. **Amulya Yadav**, Bryan Wilder, Eric Rice, Robin Petering, Jaih Craddock, Amanda Yoshioka-Maxwell, Mary Hemler, Laura Onasch-Vera, Milind Tambe and Darlene Woo. Bridging the Gap Between Theory and Practice in Influence Maximization: Raising Awareness about HIV among Homeless Youth. In *Proceedings of the 27th International Joint Conference in Artificial Intelligence (IJCAI) Best Paper Track*, 2017.
14. Lily Hu, Bryan Wilder, **Amulya Yadav**, Eric Rice, Milind Tambe. Activating the “Breakfast Club”: Modeling Influence Spread in Natural World Social Networks. In *Proceedings of the 17th International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, 2018.
13. **Amulya Yadav**, Hau Chan, Albert Jiang, Haifeng Xu, Eric Rice, Milind Tambe. Maximizing Awareness about HIV in Social Networks of Homeless Youth with Limited Information. In *Proceedings of the 26th International Joint Conference in Artificial Intelligence (IJCAI) Best Paper Track*, 2017.

12. **Amulya Yadav**, Bryan Wilder, Eric Rice, Robin Petering, Jaih Craddock, Amanda Yoshioka-Maxwell, Mary Hemler, Laura Onasch-Vera, Milind Tambe, Darlene Woo. Influence Maximization in the Field: The Arduous Journey from Emerging to Deployed Application. In *Proceedings of the 16th International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2017*. **Best Paper Nomination at AAMAS-17**
11. Bryan Wilder, **Amulya Yadav**, Nicole Immorlica, Eric Rice and Milind Tambe. Uncharted but not Uninfluenced: Influence Maximization with an Uncertain Network. In *Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2017*.
10. **Amulya Yadav**, Hau Chan, Albert Jiang, Haifeng Xu, Eric Rice, Milind Tambe. Using Social Networks to Raise HIV Awareness Among Homeless Youth In *IBM Journal of Research and Development, Vol. 61, Issue 6(4), pp. 1-10, 2017*.
9. Leandro Marcolino, Aravind S. Lakshminarayanan, **Amulya Yadav**, Milind Tambe. Simultaneous Influencing and Mapping Social Networks. In *Proceedings of the 15th International Conference on Autonomous Agents and Multiagent Systems (AAMAS) (Short Paper), 2016*.
8. **Amulya Yadav**, Hau Chan, Albert Jiang, Haifeng Xu, Eric Rice, Milind Tambe. Using Social Networks to Aid Homeless Shelters: Dynamic Influence Maximization under Uncertainty. In *Proceedings of the 15th International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2016*. **Best Student Paper Award at AAMAS-16**
7. Benjamin Ford, Matthew Brown, **Amulya Yadav**, Amandeep Singh, Arunesh Sinha, Biplav Srivastava, Christopher Kiekintveld, and Milind Tambe. Protecting the NECTAR of the Ganga River through Game-Theoretic Factory Inspections. In *Proceedings of the 14th International Conference on Practical Applications of Agents and Multi-Agent Systems (PAAMS), 2016*.
6. Eric Shieh, Albert Xin Jiang, **Amulya Yadav**, Pradeep Varakantham, Milind Tambe. An Extended Study on Addressing Defender Teamwork while Accounting for Uncertainty in Attacker Defender Games using Iterative Dec-MDPs. In *Multiagent and Grid Systems - 1 (2015) 1-38*
5. Thanh H. Nguyen, Francesco M. Delle Fave, Debarun Kar, Aravind S. Lakshminarayanan, **Amulya Yadav**, Milind Tambe, Noa Agmon, Andrew J. Plumptre, Margaret Driciru, Fred Wanyama, Aggrey Rwetsiba. Making the most of Our Regrets: Regret-based Solutions to Handle Payoff Uncertainty and Elicitation in Green Security Games. In *Proceedings of the 6th Conference on Decision and Game Theory for Security (GameSec), 2015*.
4. **Amulya Yadav**, Leandro Marcolino, Eric Rice, Robin Petering, Hailey Winetrobe, Harmony Rhoades, Milind Tambe, Heather Carmichael. Preventing HIV Spread in Homeless Populations using PSINET. In *Proceedings of the 27th Annual Conference on Innovative Applications of Artificial Intelligence (IAAI), 2015*.
3. Eric Shieh, Albert Xin Jiang, **Amulya Yadav**, Pradeep Varakantham, Milind Tambe. Unleashing Dec-MDPs in Security Games: Enabling Effective Defender Teamwork. In *Proceedings of the 21st European Conference on Artificial Intelligence (ECAI), 2014*.
2. Thanh Hong Nguyen, **Amulya Yadav**, Bo An, Milind Tambe, Craig Boutilier. Regret-based Optimization and Preference Elicitation for Stackelberg Security Games with Uncertainty. In *Proceedings of the 26th National Conference on Artificial Intelligence (AAAI), 2014*.
1. Sriparna Saha, Ashok Singh Sairam, **Amulya Yadav**, Asif Ekbal. Genetic algorithm combined with support vector machine for building an intrusion detection system. In *Proceedings of the International Conference on Advances in Computing, Communications and Informatics (ICACCI), 2012*.

Refereed Magazine Articles

2. C. Gomes, T. Dietterich, C. Barrett, J. Conrad, B. Dilkina, S. Ermon, F. Fang, A. Farnsworth, A. Fern, X. Fern, D. Fink, D. Fisher, A. R., Flecker, D. Freund, A. Fuller, J. Gregoire, J. Hopcroft, S. Kelling, Z. Kolter, W. Powell, N. Sintov, J. Selker, B. Selman, D. Sheldon, D. Shmoys, M. Tambe, W. Wong, C. Wood, X. Wu, Y. Xue, **A. Yadav**, A. Yakubu, M. L. Zeeman. Computational Sustainability: Computing for a Better World and a Sustainable Future. In *Communications of the ACM*, 2019
1. **Amulya Yadav**, Leandro Marcolino, Eric Rice, Robin Petering, Hailey Winetrobe, Harmony Rhoades, Milind Tambe, Heather Carmichael. PSINET: Assisting HIV Prevention Amongst Homeless Youth by Planning Ahead. In *AI Magazine*, Vol. 32, No. 2, pg 47-62, 2016.

Book Chapters

3. **Amulya Yadav**, Bryan Wilder, Eric Rice, Robin Petering, Jaih Craddock, Amanda Yoshioka-Maxwell, Mary Hemler, Laura Onasch-Vera, Milind Tambe, Darlene Woo. Influence Maximization in the Field: The Arduous Journey from Emerging to Deployed Application In *Artificial Intelligence and Social Work*, Cambridge University Press, 2018.
2. **Amulya Yadav**, Bryan Wilder, Hau Chan, Albert Xin Jiang, Eric Rice, Milind Tambe. Using Social Networks to Raise HIV Awareness Among Homeless Youth. In *Artificial Intelligence and Social Work*, Cambridge University Press, 2018.
1. **Amulya Yadav**, Hau Chan, Albert Xin Jiang, Eric Rice, Ece Kamar, Barbara Grosz, Milind Tambe. POMDPs for Assisting Homeless Shelters: Computational and Deployment Challenges. In *Autonomous Agents and Multiagent Systems, Visionary Papers, Lecture Notes in AI*, 2016.

Workshop & Symposium Papers

16. Wenbo Zhang, Hangzhi Guo, Prerna Ranganathan, Jay Patel, Sathyanath Rajasekharan, Nidhi Danayak, Manan Gupta, and **Amulya Yadav**. TRIM-AI: Harnessing Large Language Models for Providing Timely Maternal & Neonatal Care in Low-Resource Countries. In *AAAI International Workshop on Artificial Intelligence for Social Good (AI4SG)*, 2023.
15. Hangzhi Guo, Feiran Jia, Jinghui Chen, Anna Squicciarini, and **Amulya Yadav**. Distributionally Robust Counterfactual Explanations via an End-to-End Training Approach. In *ICML 2022 Workshop on New Frontiers in Adversarial Machine Learning (AdvML)*, 2022.
14. Hangzhi Guo, Thanh Hong Nguyen, **Amulya Yadav**. CounterNet: End-to-End Training of Counterfactual Aware Prediction. In *ICML 2021 International Workshop on Algorithmic Recourse*, 2021. **Best Paper Award Runner up**
13. Yu Liang and **Amulya Yadav**. Efficient COVID-19 Testing Using POMDPs. In *IJCAI 2020 International Workshop on Artificial Intelligence for Social Good (AI4SG)*, 2020.
12. Bryan Wilder, Laura Onasch-Vera, Graham Diguiseppi, Robin Petering, Chyna Hill, **Amulya Yadav**, Eric Rice and Milind Tambe. Large-scale clinical trial of an AI-augmented intervention for HIV prevention in youth experiencing homelessness. In *4th Workshop on Mechanism Design for Social Good (MD4SG)*, 2020. **Best Student Paper Award at MD4SG-20**
11. Maryam Tabar, Chi-Yang Hsu, Hangzhi Guo, Amirreza Bagherzadehkhosrassani and **Amulya Yadav**. Ameliorating Farmer Suicides by Predicting Crop Price Trends using a Deep Learning Approach. In *ECAI 2020 International Workshop on Artificial Intelligence for a Fair, Just and Equitable World (AI4EQ)*, 2020.

10. Stephanie Milani, **Amulya Yadav**, Fei Fang, Thanh Nguyen, Zhou Fan and Saurabh Gulati. Intelligent Tutoring Strategies for Students with Autism Spectrum Disorder: A Reinforcement Learning Approach. In *AAAI 2020 International Workshop on Artificial Intelligence for Education, 2020*.
9. **Amulya Yadav**, Aida Rahmattalabi, Ece Kamar, Phebe Vayanos, Milind Tambe and Venil Loyd Noronha. Explanation Systems for Influence Maximization Algorithms. In *IJCAI 2017 International Workshop on Social Influence Analysis, 2017*.
8. Bryan Wilder, **Amulya Yadav**, Nicole Immorlica, Eric Rice and Milind Tambe. Uncharted but not Uninfluenced: Influence Maximization with an Uncertain Network. In *AAMAS 2017 International Workshop on Optimization in Multi-Agent Systems, 2017*.
7. **Amulya Yadav**, Hau Chan, Albert Xin Jiang, Eric Rice, Ece Kamar, Barbara Grosz, Milind Tambe. POMDPs for Assisting Homeless Shelters: Computational and Deployment Challenges. In *AAMAS 2016 Workshop on Issues with Deployment of Emerging Agent-based Systems, 2016*. **Most Visionary Paper Award**
6. Leandro Marcolino, Aravind S. Lakshminarayanan, **Amulya Yadav**, Milind Tambe. Simultaneous Influencing and Mapping Social Networks. In *AAAI 2016 Workshop on Expanding the Boundaries of Health Informatics using AI, 2016*.
5. **Amulya Yadav**, Leandro Marcolino, Eric Rice, Robin Petering, Hailey Winetrobe, Harmony Rhoades, Milind Tambe, Heather Carmichael. Forming Teams of Homeless Youth To Combat HIV Spread. In *AAAI 2016 Spring Symposium on Intelligent systems for distributed human teamwork, 2016*.
4. **Amulya Yadav**, Thanh Nguyen, Francesco Delle Fave, Milind Tambe, Noa Agmon, Manish Jain, Widodo Ramono, Timbul Batubara. Handling Payoff Uncertainty with Adversary Bounded Rationality in Green Security Domains. In *IJCAI-15 Workshop on Algorithmic Game Theory, 2015*.
3. **Amulya Yadav**, Thanh Nguyen, Francesco Delle Fave, Milind Tambe, Noa Agmon, Manish Jain, Widodo Ramono, Timbul Batubara. Handling Payoff Uncertainty in Green Security Domains with Adversary Bounded Rationality. In *IJCAI-15 Workshop on Behavioral, Economic and Computational Intelligence for Security, 2015*.
2. **Amulya Yadav**, Leandro Marcolino, Eric Rice, Robin Petering, Hailey Winetrobe, Harmony Rhoades, Milind Tambe, Heather Carmichael. PSINET - An Online POMDP Solver for HIV Prevention in Homeless Populations. In *AAAI 2015 Workshop on Planning, Search and Optimization, 2015*.
1. Lila Ghemri, Siddhartha Dalal, Irfan Ul-Haq, Rakesh Verma, **Amulya Yadav**. Identifying Relevant Literature on Chemical Terrorism using Machine Learning. In *Command, Control, and Interoperability Center for Advanced Data Analysis (CCICADA)-Research Retreat, 2010*.

Videos & Demos

2. **Amulya Yadav**, Eric Rice, Robin Petering, Jaih Craddock, Bryan Wilder, Milind Tambe. HEALER: Using AI to Raise HIV Awareness among Homeless Youth In *AAAI 2017 Video Competition, Jan 2017*. **Best Video & Best Student Video Award at AAAI-17**
1. **Amulya Yadav**, Ece Kamar, Barbara Grosz, Milind Tambe. HEALER: POMDP Planning for Scheduling Interventions among Homeless Youth In *Proceedings of the International Conference on Autonomous Agents and Multiagent Systems, May 2016*.

POPULAR MEDIA COVERAGE OF MY RESEARCH

All articles and details available at: <http://amulyayadav.com/>

- Using AI, Canadian city predicts who might become homeless, **Reuters, NY Post & National Post**, 10/2020 - 11/2020
- Penn State researchers leverage AI to develop cost-effective COVID-19 testing protocols, **WTAJ News**, 05/2020 - 06/2020
- Researchers develop AI algorithm to personalize treatment of substance use in homeless youth, **Sydney Online News, Science Times, Express Computer, Kashmir Monitor, Health Crisis Alert, Labroots, Newsgram, Full Stack Feed, Imprint News, Digital Journal, Biobehavioral Health Business, OmmComm News, ScienceDaily, Eurekalert & PSU News**, 01/2020 - 09/2020
- Profit-prediction system may reduce suicide rates among indebted farmers in India, **The Print India, News Medical Life Sciences, Development Channel & PSU News**, 01/2020 - 06/2020
- How AI Could Slow the Spread of STIs, **Bloomberg, Venture Beat, Vice, Mashable, CCC Great Innovative Idea, FastCompany, Motherboard News, NextCity, Ozy**, 02/2015 - 10/2017

FIELDDED & DEPLOYED RESEARCH

- **TRIM-AI for Tele-Triage of Pregnant Women in Kenya**
(*Deployment Date: June 2022*)
This work focuses on an NLP-based risk assessment tool that infers the severity of a pregnant woman's medical condition on the basis of SMS messages shared by her. Our algorithm has been in full-time deployment in the field at Jacaranda Health, a Kenya based NGO that works with over 300,000 pregnant women in Kenya.
- **HEALER System for Awareness about HIV**
(*Deployment Date: Aug 2017*)
This work focuses on developing models and algorithms for influence maximization in social networks under different kinds of real-world uncertainties and constraints. The work has been deployed in the field for raising awareness about HIV and other STDs among homeless youth in Los Angeles.
- **PAWS (Protection Assistant for Wildlife Security)**
(*Deployment Date: Aug 2016*)
This work focuses on learning poacher behavior, predicting poaching activities, and generating randomized patrols to combat poaching. The work has been tested or deployed in the field for protecting wildlife Uganda, Malaysia, China and South Africa.

GRANTS, CONTRACTS AND FELLOWSHIPS

Total Money Raised: approx. \$1.7 Million

- *Robust Crowdsourcing: A Proactive Approach to Ensuring Fairness and Transparency in Machine Learning*. 1/1/2021-12/31/2023, Army Research Office, Principal Investigator. *Grant Award: \$359,688.*
- *Low cost biotic and abiotic stress prediction using AI*. 1/1/2021-12/31/2023, Bill & Melinda Gates Foundation, Co-Principal Investigator. *Grant Award: \$1.1 Million.*
- *Informed Social Distancing: An AI Approach to Prevent Future Waves of COVID-19*. 04/01/2020-03/31/2021, Penn State COVID-19 Seed Funding, Principal Investigator. *Grant Award: \$51,300.*

- *Optimal, Interpretable and Non-Discriminative Rehabilitation Program Design for Opioid Addiction.* 01/01/2019-12/31/2019, Penn State Seed Funding, Principal Investigator. *Grant Award: \$51,000.*
- *Generating Actionable and Reliable Summaries from Social Media in a Post-disaster Scenario.* 11/01/2018 - 01/01/2020, SPARC, Ministry of Human Resource and Development, India, Co-Principal Investigator. *Grant Award: \$71,818.*
- *AI for Identifying and Optimizing Interactions Between Transit Systems.* 12/01/2018-06/01/2019, Penn State Institute of Cyber Science Seed Funding, Co-Principal Investigator. *Grant Award: \$25,000.*

INVITED TALKS

- Invited Tutorial, December 2022, **Conference on Distributed Artificial Intelligence**
- Invited Talk, Computer Science Department, December 2022, **Case Western Reserve University**
- Invited Talk, November 2022, **IIT Patna**
- Invited Panelist, Non-Profits, AI & the Greater Good, November 2020, **Nittany AI Alliance**
- Invited Panelist, VAIBHAV Summit, October 2020, **Govt. of India**
- Invited Talk, EECS Symposium, February 2020, **Penn State**
- Invited Talk, AI For Good Summit, June 2019, **San Francisco**
- Invited Talk, Mathematics Department, June 2019, **IIT Guwahati**
- Invited Talk, Computer Science Department, June 2019, **IIT Kharagpur**
- Invited Talk, Computer Science Department, June 2019, **IIT Patna**
- Invited Talk, Computer Science Department, June 2019, **IIT Delhi**
- Invited Talk, Biocomplexity Institute, May 2019, **University of Virginia**
- Invited Talk, Department of Computer Science, February 2019, **Carnegie Mellon University**
- Tutorial, Integrating Human Factors Into AI for Fake News Prevention, January 2019, **AAAI 2019**
- Invited Talk, CISE Division, October 2018, **National Science Foundation**
- CS Colloquium Talk, Computer Science Department, March 2018, **Notre Dame University**
- CS Colloquium Talk, College of Information Sciences and Technology, March 2018, **Penn State**
- CS Colloquium Talk, Computer Science Department, March 2018, **University of Central Florida**
- CS Colloquium Talk, Computer Science Department, February 2018, **Oregon State University**
- AI for Social Good Workshop, March 2017, **Indian Institute of Science (IISc)**
- CS Advisory Board, April 2017, **University of Southern California**

STUDENTS

Ph.D. Students

1. Wenbo Zhang, Ph.D., Penn State University, Fall 2021–Present.
2. Hangzhi Guo, Ph.D., Penn State University, Fall 2020–Present.
3. Edward Amoah, Ph.D., Penn State University, Fall 2020–Present.
4. Maryam Tabar, Ph.D., Penn State University, Fall 2019–Present.
5. Yu Liang, Ph.D., Penn State University, Fall 2019–Fall 2020.

M.S. Students

1. Praney Goyal, Integrated M.S., CSE, Penn State, Fall 2022–Present.
2. Nidhi Danayak, M.S., CSE, Penn State, Fall 2021–Present.
3. Sneha Suhitha Galiveeti, M.S., CSE, Penn State, Summer 2020–Spring 2021.

Undergraduate Students

1. Anubhav Sen, B.S., CSE, Schreyer Honors College, Penn State, Fall 2022–Present.
2. Patrick Elisii, B.S., CSE, Schreyer Honors College, Penn State, Fall 2022–Present.
3. Xinchang Xiong, B.S., CSE, Schreyer Honors College, Penn State, Fall 2022–Present.
4. Manan Gupta, B.S., CSE, Penn State, Fall 2021–Spring 2022.
5. Perna Ranganathan, B.S., CSE, Schreyer Honors College, Penn State, Fall 2021–Spring 2022.
6. Anchit Goyal, B.S., CSE, Schreyer Honors College, Penn State, Summer 2020–Spring 2021.
7. Jared Gluck, B.S., CSE, Schreyer Honors College, Penn State, Summer 2020–Spring 2021.
8. Samiksha Kature, B.S., CSE, Penn State, Summer 2020–Fall 2020.
9. Arpit Singla, B.S., CSE, Penn State, Spring 2020.
10. Alexander Woodruff, B.S., IST, Penn State, Spring 2019–Fall 2020.
11. Hangzhi Guo, B.S., Wenzhou Kean University, China, Summer 2019.
12. Saurabh Gulati, B.Tech., IIT Patna, Summer 2019.

Other Mentored Students

- **Nikolas Siapoutis.** (Ph.D., Penn State University). Spring 2019.
- **Roopali Singh.** (Ph.D., Penn State University). Spring 2019.
- **Ritesh Noothigattu.** (Ph.D., Carnegie Mellon University). Summer 2016.
- **Venil Loyd Noronha.** (M.S., University of Southern California). Fall 2016 - Fall 2018.
- **Donnabell Rachel Lucas Dmello.** (M.S., University of Southern California). Fall 2016 - Fall 2018.
- **Anirudhh Bharadwaj.** (B.S., University of Southern California). Fall 2015 - Fall 2019.

Ph.D./M.S. Thesis Committee Service

- Lizhen Zhu, Ph.D., Penn State University, Contrastive Representation Learning from Contextual Information.
- Sahiti Kunchay, Ph.D., Penn State University, Investigating substance co-use in young adults through smartwatches.
- Yilin Liu, Ph.D., Penn State University, Finger Tracking for Interactive Applications using Wearable IoT Devices.
- Tracy Jia Shen, Ph.D., Penn State University, Classifying Math Knowledge Components via Task-Adaptive Pre-Trained BERT.
- Shaurya Rohatgi, Ph.D., Penn State University, Mathematical Information Retrieval in Academic Articles.
- Limeng Cui, Ph.D., Penn State University, Understanding & Detecting Misinformation on Social Media.
- Ryan Kaulakis, Ph.D., Penn State University, DSLs as a Method for Representation and Evolutionary Search Among Global Solution Space of Cognitively Plausible Algorithmic Behaviors.
- Qian Sun, M.S., Penn State University, Deep Superpixel Stereo.
- Meng Qi Liao, M.S., Penn State University, How should AI ask for users data?

PROFESSIONAL SERVICE

Editorial Positions

- **General Editor**, Book Series on Artificial Intelligence for Social Good, Cambridge University Press

Tutorials & Panels

- **Domain Expert Group Panel** on AI, Council of Scientific and Industrial Research (CSIR), India
- **AAMAS 2022 Tutorial** on Multi-Agent Systems Approaches for COVID-19: Post-hoc Perspectives
- **AAMAS 2021 Tutorial** on Multi-Agent Systems Approaches for COVID-19: Important Challenges
- **IJCAI 2020 Panel** on Artificial Intelligence for COVID-19
- **AAAI 2018 Tutorial** on Integrating Human Factors into AI for Fake News Prevention

Co-Chair

- **AAAI 2023 Workshop** on AI for Social Good (AI4SG-23)
- **KDD 2022 Workshop** on Epidemiology with Data Mining & Knowledge discovery (epiDAMIK 5.0)
- **AAMAS 2022 Workshop** on Autonomous Agents for Social Good (AASG-22)
- **KDD 2021 Workshop** on Epidemiology with Data Mining & Knowledge discovery (epiDAMIK 4.0)
- **KDD 2021 Workshop** on Data Science for Social Good (DSSG 2021)
- **IJCAI 2021 Workshop** on Artificial Intelligence for Social Good (AI4SG 2021)
- **Penn State 2021 Workshop** on AI in a Post-COVID World

- **Penn State 2021 Workshop** on Harnessing the Data Revolution to Enhance Academic Diversity
- **AAMAS 2021 Workshop** on Optimization & Learning in Multiagent Systems (OptLearnMAS 2021)
- **AAMAS 2021 Workshop** on Autonomous Agents for Social Good (AASG-21)
- **AAMAS 2019 Workshop** on Autonomous Agents for Social Good (AASG-19)
- **AAAI 2017 Spring Symposium** on AI for Social Good (AISOC-17)

Conference Senior Program Committee

- ECAI (2023)
- IJCAI (2021, 2022)
- AAAI (2019, 2020, 2021, 2022)
- Area Chair, AI For Social Good Workshop, NeurIPS (2019)

Conference Program Committee

- AAAI (2020)
- AAMAS (2019, 2021)
- IJCAI (2017, 2019, 2020)

Conference Reviewing Activity

- AAAI (2018, 2017), AAMAS (2018, 2017, 2016, 2015), IJCAI (2018, 2016)

TEACHING

- **Instructor**, Penn State DS 402: Socially Responsible AI **Spring 2023**
- **Instructor**, Penn State IST 597: Socially Responsible AI **Fall 2022**
- **Instructor**, Penn State DS 442: Artificial Intelligence **Spring 2022**
- **Instructor**, Penn State DS 310: Machine Learning for Data Analytics **Fall 2021**
- **Instructor**, Penn State DS 310: Machine Learning for Data Analytics **Spring 2021**
- **Instructor**, Penn State DS/CMPSC 442: Artificial Intelligence **Spring 2021**
- **Instructor**, Penn State DS 310: Machine Learning for Data Analytics **Fall 2020**
- **Instructor**, Penn State DS/CMPSC 442: Artificial Intelligence **Spring 2020**
- **Instructor**, Penn State IST 402: Emerging Trends in Machine Learning **Fall 2019**
- **Instructor**, Penn State IST 597: AI for Humanity **Spring 2019**