

Ayan Mukhopadhyay

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Aeronautics and Astronautics,
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Research Probabilistic modeling, decision-making under uncertainty and robust machine learning applied to social good. Current interests include predicting crimes, accidents, poaching incidents and wildfires, creating decentralized multi-agent approaches to disaster management and energy modeling.

Experience **Stanford University, USA** (October 2019-)
1) Post-Doctoral Research Fellow
Stanford Intelligent Systems Lab
Advisor: [Prof. Mykel Kochenderfer](#)
Received “Center of Automotive Research Post-Doctoral Fellowship”

2) Technical Mentor, CS for Social Good Impact Lab, 2020

Education **Vanderbilt University, USA** (2014-2019)
Ph.D. (Computer Science)
Advisor: [Prof. Yevgeniy Vorobeychik](#)
Thesis: [“Robust Incident Prediction, Resource Allocation and Dynamic Dispatch”](#)
Nominated for “Victor Lesser Distinguished Dissertation Award 2020”
(GPA : 3.98/4)

West Bengal University of Technology, India (2007-2011)
B.Tech, Computer Science, 2011.
(GPA : 8.91/10)

Publications **Peer-reviewed Conferences**
Pettet, Geoffrey, et al., [“On Algorithmic Decision Procedures in Emergency Response Systems in Smart and Connected Communities”](#), *Proceedings of the 19th Conference on Autonomous Agents and MultiAgent Systems (AAMAS 2020)* (to appear)

Mukhopadhyay, Ayan, et al., [“An Online Decision-Theoretic Framework for Responder Dispatch”](#), *Proceedings of the 10th ACM/IEEE Conference on Cyber-Physical Systems (ICCPS 2019)*

Mukhopadhyay, Ayan, et al., [“A Decision Theoretic Framework for Emergency Responder Dispatch”](#), *Proceedings of the 17th Conference on Autonomous Agents and MultiAgent Systems. (AAMAS 2018)*

Mukhopadhyay, Ayan, et al., [“Incident Prediction and Response Optimization”](#), *Proceedings of the 17th Conference on Autonomous Agents and MultiAgent Systems. (AAMAS 2018)* (Doctoral Consortium Paper)

Mukhopadhyay, Ayan, et. al., “[Optimal Allocation of Police Patrol Resources Using a Continuous-Time Crime Model](#)”, *7th International Conference on Decision and Game Theory for Security. (GameSec 2016)*

Zhang, Chao, et al., “[Using abstractions to solve opportunistic crime security games at scale.](#)”, *Proceedings of the 2016 International Conference on Autonomous Agents & Multiagent Systems. (AAMAS 2016)*

Peer-reviewed Workshops

Mukhopadhyay, Ayan; Vorobeychik, Yevgeniy, “[A Pipeline for Emergency Response](#)”, *The ICLR-19 Workshop on AI for Social Good (AISC at ICLR 2019)* [Best Paper Award]

Mukhopadhyay, Ayan, et al., “Prioritized allocation of emergency responders based on a continuous-time incident prediction model”, *The AAMAS-17 Workshop on Adversarial Reasoning in Multi-agent Systems (ADVERSE 2017)*

Mukhopadhyay, Ayan, et al., “Optimal allocation of police patrol resources using a continuous-time crime model”, *The AAAI 2017 Spring Symposium on AI for Social Good (AAAI-AISOC 2017)*

Working Papers

Mukhopadhyay, Ayan, et. al., “Robust Spatial-Temporal Incident Prediction”

Dao, Tina, et. al., “Wildfire Propagation and Resource Management under Uncertainty”

Patents

Mukhopadhyay Ayan, et al., “A Security Device”, Reference: E-2/2217/2013-KOL, Application: 616/KOL/2012. (Publication and Patent Pending)

Narsaria, Ankit et al., “Hybrid Car Power Transition Mechanism”, *Official Journal Of The Patent Office, Government of India, Issue No. 31/2012.* (Patent Pending)

Professional Activities

Reviewing (Peer reviewed conferences)

AAMAS (2019, 2017), IJCAI (2018), AAAI (2018), GameSec (2018)

Reviewing (Journals)

Artificial Intelligence Review, IEEE Access

Committee Member

AAMAS (2018) (Organizing Committee), Opt-Mas at AAMAS (2020) (PC Member)

Teaching & Mentoring	<p>Teaching (EECS, Vanderbilt University)</p> <p>Teaching Assistant, Artificial Intelligence (Under-Graduate Level), 2016 TA Evaluation : 4.2/5 (16% above dept. average)</p> <p>Teaching Assistant, Machine Learning (Graduate Level), 2017 TA Evaluation : 4.6/5 (21% above dept. average)</p>
	<p>Students Mentored</p> <ol style="list-style-type: none"> Undergraduates (as part of research programs at the Computational Economics Research Lab) <ol style="list-style-type: none"> Zilin Wang High-School Students (as part of research internships at Vanderbilt University) <ol style="list-style-type: none"> Chaitu Konjeti Elom Dumenyo High-School Students (as part of research internships at Stanford University) <ol style="list-style-type: none"> Sidhart Krishnan
Coursework	Machine Learning, Deep Learning, Statistical Analysis, Advanced Artificial Intelligence, Advanced Statistical Computing, Computational Economics, Linear Optimization, Advanced Statistical Computing
Languages	English (Native), Hindi (Native), Bengali (Proficient)
References	<ol style="list-style-type: none"> Yevgeniy Vorobeychik (PhD Advisor) Associate Professor, School of Engg. and Applied Sciences, University of Washington at St. Louis yvorobeychik@wustl.edu Abhishek Dubey, Asst. Professor, Electrical Engineering and Computer Science, Vanderbilt University abhishek.dubey@vanderbilt.edu Mykel Kochenderfer (Post-Doc Advisor), Asst. Professor, Aeronautics and Aerospace Engineering, Stanford University mykel@stanford.edu