Dr. Sabah Bushaj

Assistant Professor
State University of New York at Plattsburgh
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EDUCATION

New Jersey Institute of Technology (NJIT) - Newark, NJ
PhD in Industrial Engineering – August 2021

- Dissertation Title: Multistage Stochastic Optimization and Reinforcement Learning for Forestry and Epidemic Control Planning
- Advisor: Dr. Esra Buyuktahtakin Toy

Research was on developing multistage stochastic optimization problems, with a specific focus on invasive species and epidemic control with MIP formulation at the core. Among our interests is providing novel algorithmic contributions to solving MIP problems. Particularly, involving sequential decision-making algorithms used in reinforced learning to solve large instances of NP-hard problems.

Epoka University (EU) - Tirana, Albania
M.S. in Computer Science – July 2016

- Thesis: Quadruplets

Epoka University (EU) - Tirana, Albania
B.S. in Business Informatics - June 2014

- Thesis: Introducing Mobile Applications in Solving Econometric Problems

PROFESSIONAL EXPERIENCE

- ***State University of New York at Plattsburgh, Plattsburgh, NY*** August 2021 – Present
  Assistant Professor of Business Analytics

- ***New Jersey Institute of Technology (NJIT),*** Newark, NJ
  PhD Candidate April 2019 – August 2021
  Teaching and Research Assistant September 2018 – August 2021

- ***Novartis Oncology,*** East Hanover, NJ June 2020 – August 2020
  Data Science Intern – NLP Analyst

- ***Brizo Consulting G.m.b.H,*** Frankfurt, DE
  SAP Consultant – Data Stream October 2017 – August 2018

- ***Tirana University,*** Tirana, AL
  Lecturer October 2017 – July 2018

- ***Albtelecom Albania,*** Tirana, AL
  SAP Developer – Data Management October 2016 – September 2017

TEACHING EXPERIENCES

	Courses Taught	***Courses Developed***
Undergraduate Level	*Database*	*Introduction to Business Analytics*
	Software Engineering	
	Introduction to Math Modeling for Business	
	Principles of Operations Management	
Graduate Level	*Information Systems*	
		Predictive Analytics
		Optimization and Simulation Models

PUBLICATIONS

Title	Authors	Journal	Year	Status
An Integrated Simulation-Optimization Algorithmic Framework to Vaccine Distribution for Controlling the COVID-19[†1]	Xuecheng Yin, **Sabah Bushaj**, Esra Büyüktahtakın, Yue Yuan,	IISE Transactions	2023	Published
A Simulation-Deep Reinforcement Learning (SiRL) Optimization Approach to Controlling the COVID-19	**Sabah Bushaj,** Xuecheng Yin, Arjeta Beqiri, Donald Andrews, Esra Büyüktahtakın	Annals of Operations Research	2023	Published
Risk-Averse Multi-Stage Stochastic Optimization for Surveillance and Operation Planning of a Forest Insect Infestation	**Sabah Bushaj,** Esra Buyuktahtakin, Robert Haight	European Journal of Operations Research	2022	Published
Optimizing Surveillance and Management of Emerald Ash Borer in Urban Environments	**Sabah Bushaj,** Esra Buyuktahtakin, Denys Yemshanov, Robert Haight	Natural Resource Modeling	2021	Published
Public Health Planning Using a Simulation-Reinforcement Learning (SiRL) Approach	**Sabah Bushaj,** Esra Buyuktahtakin, Arjeta Beqiri	IISE Annual Conference Proceedings	2022	Published
A Deep Reinforcement Learning Approach for Solving Multi-Dimensional Knapsack Problem	**Sabah Bushaj,** Esra Buyuktahtakin	Journal of Global Optimization		2nd Stage Review
An Integrated Simulation-Optimization Framework to Optimize Search and Treatment Path for Controlling a Biological Invader	Sevilay Onal, **Sabah Bushaj,** Esra Buyuktahtakin, Jennifer Smith, Gregory Houseman	Journal of Environmental Management		1st Stage Review

[1] Featured in IISE Transactions

IN PROGRESS

Improving Student Support through Data Driven Machine Learning Models	Brandon Porter, Peter Puglia, **Sabah Bushaj.**			In Progress
Predicting the Risk of Depression Based on the Patient's Chronic Diseases and Other Physiological Attributes	Bach Do, Maria Pina-Mousseau, Dhruv Shah, Sabah Bushaj			In Progress
Using Machine Learning to Predict Use of Force in Police Encounters	Mustafa Demir, Sabah Bushaj			In Progress

CONFERENCE TALKS

Title	Conference	Location	Year
A Risk-Averse Multistage Stochastic Model Utilizing Scenario Dominance Cuts for Optimal Control of a Forest Invasive Insect	INFORMS Annual Meeting	Phoenix, AZ	October 2023
Covid-19: Agent-Based Simulation-Optimization to Vaccine Center Location Vaccine Allocation Problem	INFORMS Annual Meeting	Phoenix, AZ	October 2023
Predicting the Risk of Depression Based on Patient's Chronic Diseases and Other Physiological Attributes	SNAS Annual Conference	Madison, NJ	October 2023
A Deep Reinforcement Learning Approach to Solving the Multidimensional Knapsack Problem	INFORMS Annual Meeting	Indianapolis, IN	October 2022
Public Health Planning Using a Simulation-Reinforcement Learning (SiRL) Approach	IISE Annual Conference & Expo	Seattle, WA	May 2022
A Risk-Averse Multi-stage Stochastic Optimization Approach to the EAB Epidemic Problem in the US Forests	INFORMS Optimization Society Conference	Greenville, SC	March 2022
A Deep Reinforcement Learning Approach to Solving the Multidimensional Knapsack Problem	INFORMS Optimization Society Conference	Greenville, SC	March 2022
Risk-Averse Multi-stage Stochastic Optimization for Surveillance and Operations Planning of a Forest Insect Infestation	INFORMS Annual Meeting	Online	October 2021
A Simulation-Deep Reinforcement Learning (SIRL) Optimization Approach to Controlling the Covid-19 Epidemic	INFORMS Healthcare	Online	July 2021
A Deep Reinforcement Learning Approach for Solving Multi-Dimensional Knapsack Problem	MIP Workshop	Online	May 2021

A Risk-Averse Multistage Stochastic Program to Optimize Search and Control of EAB in Cities	INFORMS Annual Meeting	Online	November 2020
Optimizing Search and Control of EAB in Urban Environments	INFORMS Annual Meeting	Seattle, WA	October 2019
Optimizing Search and Control of EAB in Urban Environments	MOPTA Conference	Bethlehem, PA	October 2019
A Multistage Stochastic Programming Approach to the Optimal Surveillance and Control of Emerald Ash Borer in Cities	NJ Forest Services	Newark, NJ	November 2019
Risk-Averse Multistage Stochastic Problem Formulations	Minneapolis Forest Services	Online	November 2019
Multistage Stochastic Programming to Optimize Surveillance and Management of Emerald Ash Borer in Urban Environments	NJIT Dana Knox Student Research Showcase	Newark, NJ	April 2019

SERVICE

Service

- Organizing Member of SUNY Plattsburgh Fall 2023 Research Day
- Chair of ENRE – Early Career Best Paper Award Committee, INFORMS 2023
- Workshop for SNAS Members: Data Visualization and Decision Trees, SNAS 2023
- Chair of two Department Search Committees, 2023
- Member of Course and Program Review Committee (School Level)
- Member of SUNY Plattsburgh Success Consortium (University Level)
- Organizing Member of SUNY Plattsburgh Fall 2022 Research Day
- Session Chair IISE Annual Conference and Expo 2022

Training

- SUNY HyFlex Course Development and Delivery, 2023
- SUNY Student Success Summit, 2023
- D2L Brightspace Pilot Workshop, 2022
- Scaffolding Big Assignments Workshop, 2022
- Active Learning in Large Classes Workshop, 2022

Course Work:

- MIS355 - Introduction to Business Analytics, 3 cr. (Created)
- MSA550 – Predictive Analytics, 3 cr. (Modified)
- MSA560 – Optimization and Simulation Models, 3 cr. (Modified)

Reviewer for:

- Annals of Operations Research
- Socio-Economic Planning Sciences
- Operations Research Forum
- Ecological Economics

Member of:

- Institute of Industrial and Systems Engineers (IISE)
- Institute for Operations Research and the Management Science (INFORMS)
- Society of North American Scholars (SNAS)

SELECTED AWARDS

- SUNY Plattsburgh Food Waste Management Project, $3000, 2022-2023
- Presidential Research Award Grant, SUNY Plattsburgh, $2500, 2021-2022
- SUNY IDAP (Individual Development Awards Program), $500, 2022-2023

- SUNY IDAP (Individual Development Awards Program), $1785, 2021-2022
- Graduate Tuition Award, Mechanical and Industrial Engineering Department, NJIT 2018-2021
- Graduate Fee Award, Mechanical and Industrial Engineering Department, NJIT 2018-2021
- Graduate Stipend Award, Mechanical and Industrial Engineering Department, NJIT 2018-2021