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## FROM THE DIRECTOR

AI4OPT strives to be the nexus point for the fusion of AI and optimization, and effective communication and community building are essential to fulfill this role. In addition to articles on our website, social media, and this very newsletter, AI4OPT is always looking for ways to make our research more accessible. For example, we recently launched a [media center](#) that includes short high-level videos, podcasts, and full lectures. To build community, AI4OPT is participating in and organizing various workshops and events, and is hosting a public seminar series with recordings on [YouTube](#). Last month, for example, AI4OPT participated in two major events: the INFORMS Annual Meeting and the Summit for AI Institutes Leadership (SAIL). The INFORMS Annual Meeting is one of the major conferences in optimization, and AI4OPT contributed to over 20 presentations, keynotes, and panels, and AI4OPT members won multiple awards. The Institute also ran a booth to increase its visibility to the community. The SAIL conference was an opportunity to connect to other AI institutes, and AI4OPT took part in a variety of sessions and panels. The last day of the conference was a public expo day, where faculty and students had the opportunity to talk about their work to the general public.



The effective communication of AI4OPT is for a large part due to Director of Communications Breon Martin. He spoke about his experience at the SAIL conference, and is also featured in the member spotlight in this newsletter. The student spotlight is on Anna Deza, who is a member of the student leadership council and helped organize a student event at INFORMS to foster community within AI4OPT. Looking forward, we are getting ready for Tech-Fest, our second annual industry day. You'll be able to find more information in this newsletter, and I look forward to seeing you there.

- Pascal Van Hentenryck

# MEMBER SPOTLIGHT

HEAR FROM AI4OPT MANAGEMENT



Meet AI4OPT's Communications Director, **Breon Martin**. With over 7 years of experience in TV news spanning New York, California, Louisiana, Kentucky, and Indiana, Breon is a multi-Emmy award-winning journalist. He transitioned into the role of AI Research Communications Manager in July 2022. Breon oversees communication for AI-CARING and AI-ALOE, both based at Georgia Tech. In this capacity, he manages and supervises all aspects of communication, with a particular focus on marketing, and covering AI and STEM education updates at Georgia Tech.

## How I Set Myself Up for Effective Communication

By Breon Martin

Since college, I've had a strong passion for journalism. It was like an intense passion that drove me to uncovering stories and conveying it to the world. My time as a news anchor and reporter was at the core of my aspirations. As I thought about how I communicated and shared information, I realized I was destined to continue covering what interested me most: technology and STEM. With the necessary writing skills, switching from Journalism to Communications was a natural step, even after years in the field.

For me, when something is key to reaching your goals, you should incorporate it into your life. So, I chose Communications as my future career path. Now, at Georgia Tech, I've fallen in love with my profession. Every day, I eagerly check the latest innovations and AI talks online and read the opinions of respected journalists, researchers, and news outlets. Being an AI communications manager means I can do what I love for a living, not just work a job. It's like living a technologically well-informed life. I find so much joy in interviewing researchers from various backgrounds within AI4OPT. Interacting and communicating with our members is a rewarding process that leads to great connections and relationships.

Plus, research plays a crucial role in my work, and I find it fulfilling to explore topics such as AI in healthcare, supply chain, AI-based teaching assistants, and generative AI. My experience with the Institute Communications team at Georgia Tech has provided me with supportive colleagues and great resources, which have allowed me to create high-quality social content and conduct interviews that showcase the exceptional work of the talented individuals I collaborate with, that you see throughout our website, newsletter and social media.

When it comes to effective communication, you need to be wired a certain way, and for me, I gain confidence as someone who can make knowledge and understanding more accessible.

Communication is ingrained in me; it's a way of life, and I always look forward to bringing out the personalities of those I interview, allowing their work to speak for itself.



# INFORMS IMPACT AND PUBLICATIONS

## AI4OPT'S SIGNIFICANT PARTICIPATION IN INFORMS 2023

### AI4OPT members recognized with INFORMS Optimization Society Prizes and Awards:



**Renato Monteiro** (Georgia Tech) was awarded the Khachiyan Prize for his work in the field of continuous optimization. His presentation, "[A Journey Through Many Exciting Topics of Continuous Optimization](#)," highlighted his contributions to the field and their potential impact.



**Alper Atamturk** (UC Berkeley) received the Farkas Prize for his work in strengthening mixed-integer programming (MIP) formulations of hybrid model predictive control. His presentation, "[Strengthening MIP Formulations of Hybrid Model Predictive Control](#)," showcased his innovative approaches to enhancing the accuracy and efficiency of MIP-based optimization in control systems.



The 2023 INFORMS Annual Meeting took place in Phoenix, Arizona, Oct 2023. Among the various sessions and presentations, members of the NSF AI Institute for Advances in Optimization (AI4OPT) made a significant impact throughout the event, underlining the commitment of AI-driven optimization across a range of real-world fields.

### AI4OPT Student Receives Best Paper Award



**Jie Wang**, a 4th-year Ph.D. student in the Industrial Engineering program at Georgia Tech, supervised by Prof. Yao Xie wins INFORMS Workshop on Data Mining and Decision Analytics Best Paper Award Theoretical Track for paper titled "Entropic Regularization for Adversarial Robust Learning." The full list of authors: Jie Wang, Yifan Lin, Song Wei, Rui Gao and Yao Xie. Additionally, Wang was recognized as a finalist in the "2023

INFORMS BSS Data Challenge in INFORMS Workshop on Data Mining and Decision Analytics" for report on "Reliable Offline Pricing in eCommerce Decision-Making: A Distributionally Robust Viewpoint."



During the INFORMS Exhibit Hall the AI4OPT booth captured the interest of both prospective partners and aspiring postdoctoral and Ph.D. candidates interested in joining us.

### An AI4OPT Leader Receives Book Recognition With Award



**George Lan** received the the 2023 INFORMS Lanchester prize for his book titled "[First-order and Stochastic Optimization for Machine Learning](#)."



To see additional photos and the sessions AI4OPT members participated in, click [here](#).

## Publications

AI4OPT is connecting the AI and Optimization communities, exemplified by presentations at top AI conferences such as ICML as well as publications in flagship INFORMS journals like *Management Science* and *Operations Research*.

- Taoan Huang, Aaron Ferber, Yuandong Tian, Bistra Dilkina, and Benoit Steiner. Searching Large Neighborhoods for Integer Linear Programs with Contrastive Learning. International Conference on Machine Learning, volume 202 of Proceedings of Machine Learning Research, pages 13869–13890, 2023. <https://proceedings.mlr.press/v202/huang23g.html>
- Jad Salem and Swati Gupta. Secretary Problems with Biased Evaluations Using Partial Ordinal Information. *Management Science*, page forthcoming, 2023. doi: [10.1287/mnsc.2023.4926](https://doi.org/10.1287/mnsc.2023.4926)
- Dorit S. Hochbaum, Asaf Levin, and Xu Rao. Algorithms and Complexities of Matching Variants in Covariate Balancing. *Operations Research*, 71(5):1800–1814, 2023. doi: [10.1287/opre.2022.2286](https://doi.org/10.1287/opre.2022.2286)

# STUDENT HIGHLIGHT

HEAR FROM OUR STUDENTS

Meet **Anna Deza**, a 4th-year Ph.D. student at Berkeley, in the IEOR (Industrial Engineering and Operations Research) department, and a member of the AI4OPT Student Leadership Council (SLC). Anna is advised by Alper Atamturk, a professor of Industrial Engineering and Operations Research at the University of California, Berkeley, and of the AI4OPT AI for Energy Team.



## Tell us about your research and how you got involved with AI4OPT?

My research is focusing on using integer programming for sparse learning problems. Sparsity is a highly desired trait in machine learning models for reasons such as lessened computational cost as well as interpretability. Unfortunately, optimizing for exact sparsity is often challenging. My research aims to use mixed integer programming techniques to tackle such problems. I got involved with AI4OPT via my advisor, Professor Atamtürk. I am now part of the AI4OPT Student Leadership Council, where I help to organize activities to promote student collaboration and networking.

## What sparked your interest in artificial intelligence (AI) and optimization?

My research is actually OPT4AI! I did my undergraduate degree at the University of Toronto, specializing in Machine Learning (ML). There, I was exposed to the power of AI models as well as the theory and engineering behind them. There are a huge number of modeling decisions when creating these models where we have to keep in mind many, sometimes opposing, goals such as accuracy, scalability, robustness, and interpretability. This complexity gives rise to challenging problems with the potential for high impact.

Combining discrete optimization with machine learning models allows us to develop new techniques for building AI with better performance under metrics of interest. I believe such projects have an ideal mix of theory as well as practical application, especially for students like me who enjoy both math and coding.

## What's something you would say is unique about you... and or tell us something fun you do when you're not studying or doing research work?

During my free time, there is nothing I love more than going to coffee shops. They are the perfect place for everything: working on your laptop, meeting with friends, or just taking a break to read and think on your own. Berkeley has a wonderful coffee shop scene that I've been enjoying exploring. I am also a big fan of art and science museums, and I'm always looking for new exhibitions to attend.



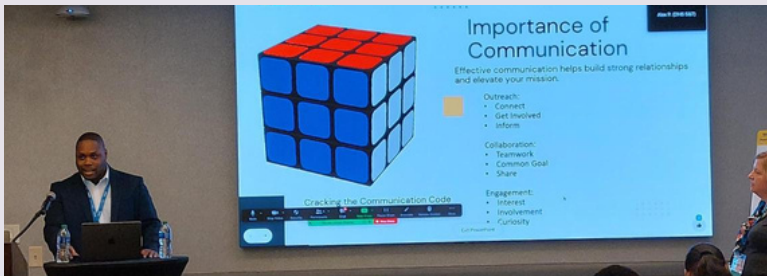
# 2023 SAIL SUMMIT

WHERE NSF INSTITUTES' RESEARCHERS AND STAFF CONNECT

OCTOBER 23 - 26 | ATLANTA, GEORGIA



The 2023 SAIL Summit, hosted by [AIVO](#), took place at the end of October at the Georgia Tech Hotel and Conference Center in Atlanta, GA. The four-day hybrid event commenced with a workshop on "Institute Outreach and Communications" featuring Breon Martin, Georgia Tech's AI Research Communications Manager and Director of Communications for AI4OPT.



During the conference portion of the summit, Jim Donlon, Program Director at NSF, Michael Littman, Division Director at NSF, and Steve Thomson, National Program Leader at USDA, delivered welcoming remarks. Throughout the week, the event featured insights from industry leaders, including Dana Rao, General Counsel, Chief Trust Officer, and Executive Vice President, Legal, Security, and Policy at Adobe, who discussed the impact of AI on society. Leaders from AI4OPT participated in panel discussions, engaged with members of Congress, and held workshops. AI4OPT Project Manager Kevin Dalmeijer was featured in the Project Management Best Practices panel, and Pascal Van Hentenryck, AI4OPT Director, took part in a panel discussion on Partnership Strategies.

[Read More](#)

The AI for Scientific Discovery workshop included Yongsheng Chen, the leader of the AI4OPT AI for Sustainability Team, and Yao Xie, a member of the AI4OPT "Decision Making Under Uncertainty" team, was featured in a parallel session on Foundational Topics in AI.



The summit concluded with the AI Institutes Expo and Engagement Showcase, where all 25 NSF-supported AI institutes presented their cutting-edge AI research to the Georgia Tech community and the public.



This included the participation of Farhana Hasan, Founder and CEO of Women Inspired in Life and Leadership (HerWILL), and her team, discussing the current state of AI applications in various fields. The expo was followed by a keynote address from Angel Cabrera, President of the Georgia Institute of Technology.



# NEWS AND EDUCATION

EDUCATIONAL INITIATIVES AND WORK OF OUR MEMBERS

## AI4OPT welcomes Fulbright scholar from Korea

Jihye Jung has a Ph.D. in Industrial Management Engineering from Korea University, Seoul.



## AI4OPT Explores Beeper's Autonomous Mobility Solutions

This hands-on experience is key ensuring that AI4OPT's research effectively addresses real-world challenges.

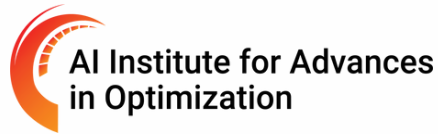


## Update on Members of the First FTP (Cohort 2022 - 2024)

The Summer 2023 AI4OPT Faculty Training Program (FTP) was led by Charles Pierre, an associate professor of mathematics in the Department of Mathematical Sciences at Clark Atlanta University and a member of the AI4OPT Undergraduate Education Team. Pierre and his team spent a few weeks in July with the first cohort at the AI4OPT headquarters, participating in formal presentations by AI4OPT members and guests, engaging in Q&A sessions, conducting workshops, completing their Deep Learning course, and more:

- **Week 1:** The cohort began the first week with a presentation by AI4OPT Postdoctoral Fellow Rosemarie Santa González, which also featured a duo talk from Kevin Dalmeijer, Managing Director of AI4OPT, and Ph.D. student Chungjae Lee.
- **Week 2:** The cohort had the opportunity to hear from Bistra Dilkina, the leader of the AI4OPT Optimization Solvers Team at the University of Southern California. Also, Lizanne DeStefano, the AI4OPT Quality Control Board Leader, led a focus group during this week. This week also included the participation of Postdoc Mathieu Tanneau and several students from his AI for Energy group, who shared a variety of their projects and research with the cohort.
- **Week 3:** The cohort received a presentation by AI4OPT members Paul Grigas and Alan Elera. In this week, the FTP also had a meeting with the AI4OPT Student Leadership Council to discuss opportunities and collaboration. The following day, the group attended a portion of the AI4OPT's NSF annual review, which provided insights into the program's progress and impact.

Learn more about our cohort expansion on [Page 8](#).



# TECHFEST

2023  
SPEAKERS

**Date:** THURSDAY, NOV 9, 2023

**Time:** 8:30AM - 5:00PM

**Location:** Krone Engineered Biosystems Building  
(950 Atlantic Dr NW, Atlanta, GA 30332)



Chantal Bisson-Krol  
**Kinaxis**



Jeff Baker  
**Southern Company**



Kyle Corley  
**Southern Company**



Arun Giri  
**Union Pacific**



Nurali Virani  
**GE Vernova**  
**Advanced Research**



Warren Hearnnes  
**Best Buy**



Wes Strait  
**Best Buy**



Tejas Santanam  
**Beep**

Join us for our second annual industry day! Hear from Georgia Tech Executive Vice President for Research, Chaouki Abdallah, Director of AI4OPT, Pascal Van Hentenryck, and presentations from industry leaders.

[Full Agenda](#)

# OUTREACH

FACULTY TRAINING PROGRAM INVITES NEW PARTICIPATION

## Become a Faculty Training Program Participant (Cohort 2024 - 2026)



With the continued success of our first cohort Faculty Training Program (FTP), AI4OPT is now gearing up to launch the 2024-2026 cohort. If you're interested in learning more about the FTP and want to join the next cohort, please email Cami Douglass at [camille.douglass@isye.gatech.edu](mailto:camille.douglass@isye.gatech.edu).

### More about the FTP

The AI4OPT Faculty Training Program (FTP) provides faculty members from historically Black colleges and universities (HBCUs) and minority-serving institutions (MSIs), in the US, with courses in artificial intelligence (AI), data science, and course design to establish a minor or major data science program at their institutions. An ambitious undergraduate education initiative led by Charles Pierre, an associate professor in mathematics in the Department of Mathematical Sciences at Clark Atlanta University.

The FTP is structured into cohorts and cycles that span three academic years. During the initial two years, participants in the cohort will enroll in courses tailored to STEM professors with a mathematics background but no prior exposure to AI, developed by AI4OPT. Following two years of coursework, participants will have acquired sufficient AI knowledge to join regular courses offered at AI4OPT institutions, including the University of Southern California, UC Berkeley, and Georgia Tech.

## CONNECT WITH US

Our objective is to enhance community engagement by leveraging cutting-edge AI and optimization technologies to tackle some of society's most pressing issues, including energy, logistics, and supply chains, resilience, sustainability, circuit design, and control.

To stay up-to-date on our ongoing projects, research, and community events, we encourage you to subscribe and follow us. If you are interested in media relations or learning more about AI4OPT's research, education, and partnership initiatives, please do not hesitate to get in touch with us via email or phone.

Stay informed by subscribing to our newsletter and following [@AI4OPT](#) on social media!

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