MD4SG

Mechanism Design for Social Good

Newsletter #5
Spring Semester 2023

Dear MD4SG community,

It is our pleasure to present you with our newsletter for the Spring 2023 semester. We are thrilled to share our members' work from our working groups, our regular meetups during community socials, and a series of thought-provoking Medium articles that highlight current topics our community has been engaged in. As always, our ultimate goal is to improve equality, ensure diversity and inclusion, and spark collaboration and responsible human-centered research.

At MD4SG we understand that achieving these goals requires ongoing efforts and a commitment to bringing together experts and practitioners from diverse disciplines. That's why we organize a variety of events, including virtual social events, colloquium talks, and the EAAMO conference. Through these events, we provide a platform for researchers and practitioners to discuss and share ideas on how to shape and achieve our community's goals.

We are excited to bring you the fifth MD4SG newsletter, which highlights the activities we've been engaged in during the first half of 2023. As always, we welcome your suggestions and feedback on how we can continue to improve and make a positive impact in our community.

We hope you enjoy the MD4SG newsletter.
MD4SG Organizers

Events

ACM Conference on Equity and Access in Algorithms, Mechanisms, and Optimization (EAAMO '23)

We are excited to announce the third ACM Conference on Equity and Access in Algorithms, Mechanisms, and Optimization (EAAMO '23). The conference will be held from **October 30 to November 1, 2023,** at **Boston University in Boston, MA, USA**.

EAAMO '23 will bring together academics and practitioners from diverse disciplines and sectors. The conference will highlight work along the research-to-practice pipeline aimed at improving access to opportunity for historically underserved and disadvantaged communities, as well as mitigating harm related to inequitable and unsafe outcomes. In particular, we seek contributions from different fields that offer insights into the intersectional design and impacts of algorithms, optimization, and mechanism design with grounding in the social sciences and humanistic studies. EAAMO '23 will host archival and non-archival contributions to the research and the policy and practice tracks. Submissions will include research, survey, and position papers, as well as problem- and practice-driven submissions by academics and practitioners from any discipline or sector.

The conference will offer opportunities to engage with leading experts, share innovative research and practices, and network with peers. We look forward to your participation in this exciting event.

We are thrilled to announce that our Call for Volunteers and our financial assistance programs are now open! We encourage students from under-represented groups to apply by **August 10, 2023**.

Program Chairs
Vahideh Manshadi, Yale University
Celestine Mendler-Dünner, Max Planck Institute for Intelligent Systems
Elissa Redmiles, Max Planck Institute for Software Systems
Maria Rodriguez, University at Buffalo

General Chairs
Abraham Flaxman, University of Washington
Saiph Savage, Northeastern University
Adam Smith, Boston University

Selected
MD4SG Research

Selected Project

Learning from Indigenous Voices in Mexico

One of the most ambitious diversity programs that we undertook at EAAMO '22 was the sponsorship of a cohort of eight female Indigenous female students from the Huasteca region of San Luis Potosí, Mexico. Their participation in the conference was the culmination of the MD4SG-COPOCYT Summer of Science, a collaboration between MD4SG and the Science and Technology Council of San Luis Potosí (COPOCYT). The Summer of Science is a new program in which Indigenous students prepare research proposals aimed at using STEM to improve their local communities. Researchers from the MD4SG community are paired with students based on how their research interests match with student proposals, and over the summer, they meet virtually to work toward preparing an academic poster. These posters are subsequently presented at EAAMO to the wider academic community participating in the conference.

This year's students presented projects on the themes of preservation of Indigenous language/culture, affordable housing, and equitable access to healthcare for Indigenous communities. We invite you to read more about their backgrounds and projects in the Medium article "Diversity at EAAMO '22."

We are deeply indebted to our EAAMO sponsors—the McArthur Foundation, the Sloan Foundation, and PIT-UN—for providing funds that paved the way for sponsoring these students' conference registration fees. In addition, we would like to thank the government of San Luis Potosí for providing travel funds for our students, as well as the US Consulate in Monterrey and the National Association of Universities and Higher Education Institutions of Mexico (ANUIES) for greatly facilitating and sponsoring our students' visa process.

Selected Project

Responsible AI in Africa
Challenges and Opportunities

CHINASA T. OKOLO

KEHINDE ARULEBA

GEORGE OBAIDO

As a part of the Data and the Global South project, our members Chinasa Okolo, Kehinde Aruleba, and George Obaido wrote a chapter in the Social and Cultural Studies of Robots and AI series about the state of responsible artificial intelligence (AI) in Africa. The project was motivated by the lack of trust, power asymmetries, and deficit narratives that have resulted in an oversight of research for and by researchers in the Global South.

This chapter provides insights into the challenges and opportunities of adopting and implementing AI technologies in Africa. The study explores the concept of responsible AI and its implications for technologies developed and used in Africa. It further analyzes the hurdles for effective adoption and implementation of AI, including digital literacy, the scarcity of local AI talent, and governmental barriers. Additionally, the chapter provides an overview of the AI startup and research landscape in Africa, highlighting both promising organizations and concerning trends. The chapter concludes by envisioning the potential of responsible AI in the African context and provides actionable recommendations for moving toward this goal. The analysis sheds light on the importance of responsible AI for sustainable development in Africa and the opportunities it presents for bridging the digital divide.

Link

Project Announcement

Research Directory of People Working on Areas Related to MD4SG Initiative

The Development Working Group is creating a research directory that will connect individuals involved in MD4SG initiatives. The directory aims to lower the barrier to starting important work by facilitating connections between researchers, stakeholders, and students from all over the world. The goal is to make it easier for conference organizers to invite guests, help students find mentors, and assist researchers in finding collaborators. The directory will include individuals working in various fields such as computer science, economics, education, health, conservation, and development.

To create the directory, the Development Working Group has already shortlisted around twenty-five individuals from various research communities such as Deep Learning Indaba, Masakhane, and Data Science Africa, and members of the MD4SG community. The first version of the directory is available on this website. If you are interested in joining the directory please fill out this form.

Interested individuals can find more information about the project here. The Development Working Group organizers—Cynthia Habonimana, Elizabeth Bondi-Kelly, and Nuredin Ali—are also available to answer any questions. Contact the organizers with any questions at md4sg.dev.group@gmail.com.

Link

MD4SG
Working Groups Summaries

Algorithms, Law, and Policy

ORGANIZERS

THOMAS GILBERT   AYSE GIZEM YASAR

The Algorithms, Law, and Policy Working Group consists of researchers and practitioners from diverse backgrounds, including law, social sciences, and computer science. The following are summaries of the talks presented at the group meetings:

- Alexander Egberts (PhD student at the Max Planck Institute) presented his work on the regulation of dark patterns in the EU. Alexander provided an overview of the literature on this topic, analyzed manipulative choice architecture designs from a legal perspective, and proposed potential avenues for further research in this area.

- To help create a policy brief, working group members discussed the EU's Digital Markets Act (DMA). This act aims to promote fairness and contestability in digital markets by establishing rules for large tech companies. The group discussed the effectiveness of the DMA in benefiting citizens, as well as alternative approaches to address the issue of market size and whether legislation can truly shape the direction of technology in society.

- Miri Zilka (Research Fellow at the University of Cambridge) presented her recent work on algorithmic tools in the UK criminal justice system. By examining the use of algorithms as decision aids from policing to parole decisions, Miri's work highlights both the advantages of improved efficiency and consistency, and the concerns surrounding the transparency of such tools. In addition, Miri has identified a critical lack of transparency in the currently deployed algorithmic tools that can be mitigated with transparent development and deployment of such algorithms.

- Andrew Carr presented his work on Reinforcement Learning from Privacy Feedback, which addresses privacy leaks in large language models. By using privacy measures as a reward signal alongside traditional metrics for text summarization tasks, large language models can be trained to generate accurate summaries while minimizing the disclosure of sensitive information. The results show promise in mitigating privacy issues and open possibilities for future directions, including reducing biased language in model generations.

MD4SG Working Groups Survey

Thank you for your commitment to and engagement in our working groups. Your contributions are crucial to advancing our mission to help improve access to opportunity. To better meet your needs, we value your anonymous feedback on how we can improve and enhance the effectiveness of the groups.

We understand your unique perspectives and expectations, and we want MD4SG to accommodate them. Your feedback is valuable in creating a dynamic and inclusive environment.

We genuinely appreciate your input and will carefully consider each suggestion. Our goal is to maximize the value and impact of our working groups. Thank you for being a part of MD4SG's Spring 2023 semester, and we look forward to your feedback.

[Survey]

MD4SG
Community Building

Social Events

The MD4SG Community Engagement team organizes events on a regular basis to include and encourage discussion between junior and senior MD4SG members.

MD4SG Mentorship Program

The second cycle of the MD4SG mentorship program took place from February to May 2023, providing a valuable platform for career mentorship. The program successfully matched 15 mentors with 33 mentees from diverse backgrounds and varying levels of experience, ranging from undergraduate students to professors and industry professionals. This international initiative brought together individuals from 12 different countries, fostering a rich exchange of ideas and perspectives.

Throughout the three-month program, mentors and mentees engaged in small group discussions, tackling a wide range of topics relevant to career development. These discussions encompassed crucial aspects such as finding the right graduate program, securing postdoc positions, or navigating the path to a university position. Moreover, mentors shared their insights on maintaining a healthy work-life balance and addressing the hidden challenges that often arise before and after graduation.

A big thank you goes to **Renzhe Yu** and **Sakina Hansen** from the Community Engagement team for setting up the mentorship program.
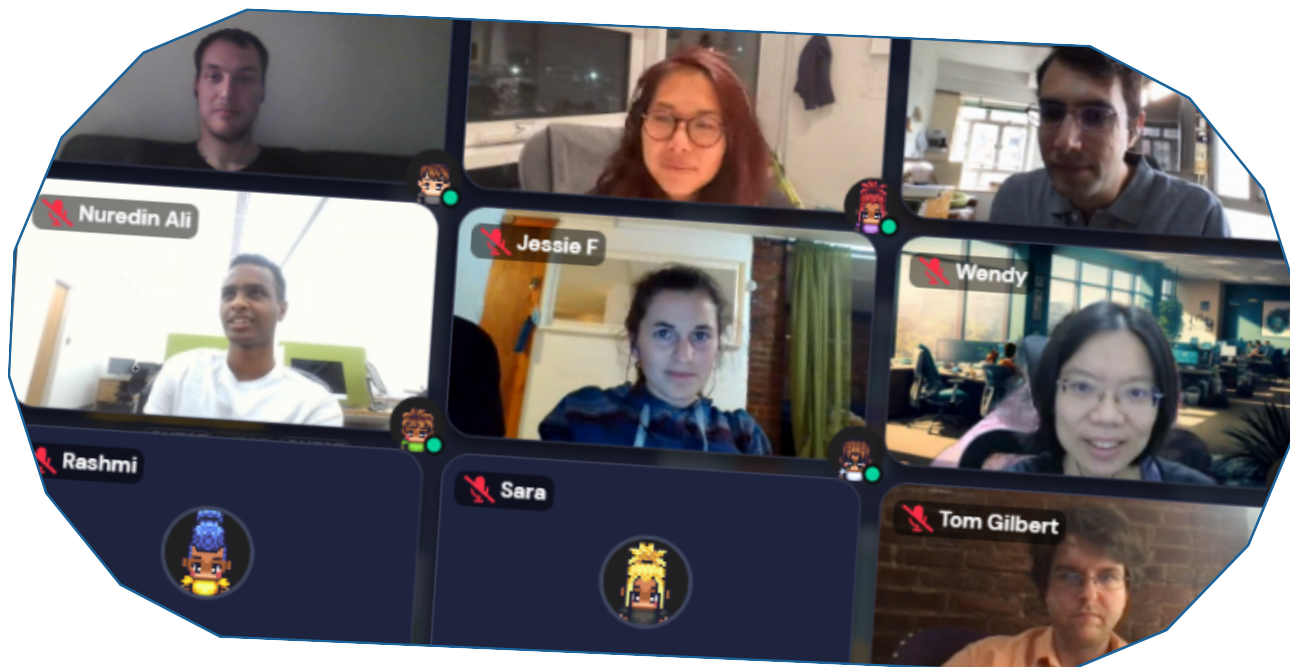
Social Events

MD4SG Gather.town Meetup

The wonderful team at Virtual Chair has designed a meeting space specifically for the MD4SG community on Gather.town as part of their growing Academic Metaverse.

We had a global representation at the meetup, with people from the United States, Europe, and Asia. As always, MD4SG welcomes people from across the globe, regardless of whether they are veteran working group members or new to the MD4SG community. At the meetup, we discussed PhD programs and applying to PhD studies, publication at conferences, the cultural differences between different areas, and work-life balance.

Social Events

MD4SG @ AAAI '23

Lily Xu organized an MD4SG meetup at the Association for the Advancement of Artificial Intelligence Conference on Artificial Intelligence (AAAI '23). People from various fields who want to improve access to social goods using artificial intelligence met and discussed their posters, talks, ideas, and other interesting events.

The following papers were presented at AAAI '23 by members of the MD4SG community:

- Jessica Finocchiaro: Online Platforms and the Fair Exposure Problem Under Homophily
- Greg d'Eon: Better Peer Grading through Bayesian Inference
- Lily Xu: Optimistic Whittle Index Policy: Online Learning for Restless Bandits
- Alex DiChristofano: Global Performance Disparities Between English-Language Accents in Automatic Speech Recognition
- Cornelius Adejoro: Empower Children in Nigeria to Design the Future of Artificial Intelligence (AI) through Writing

MD4SG selected Readings and Videos
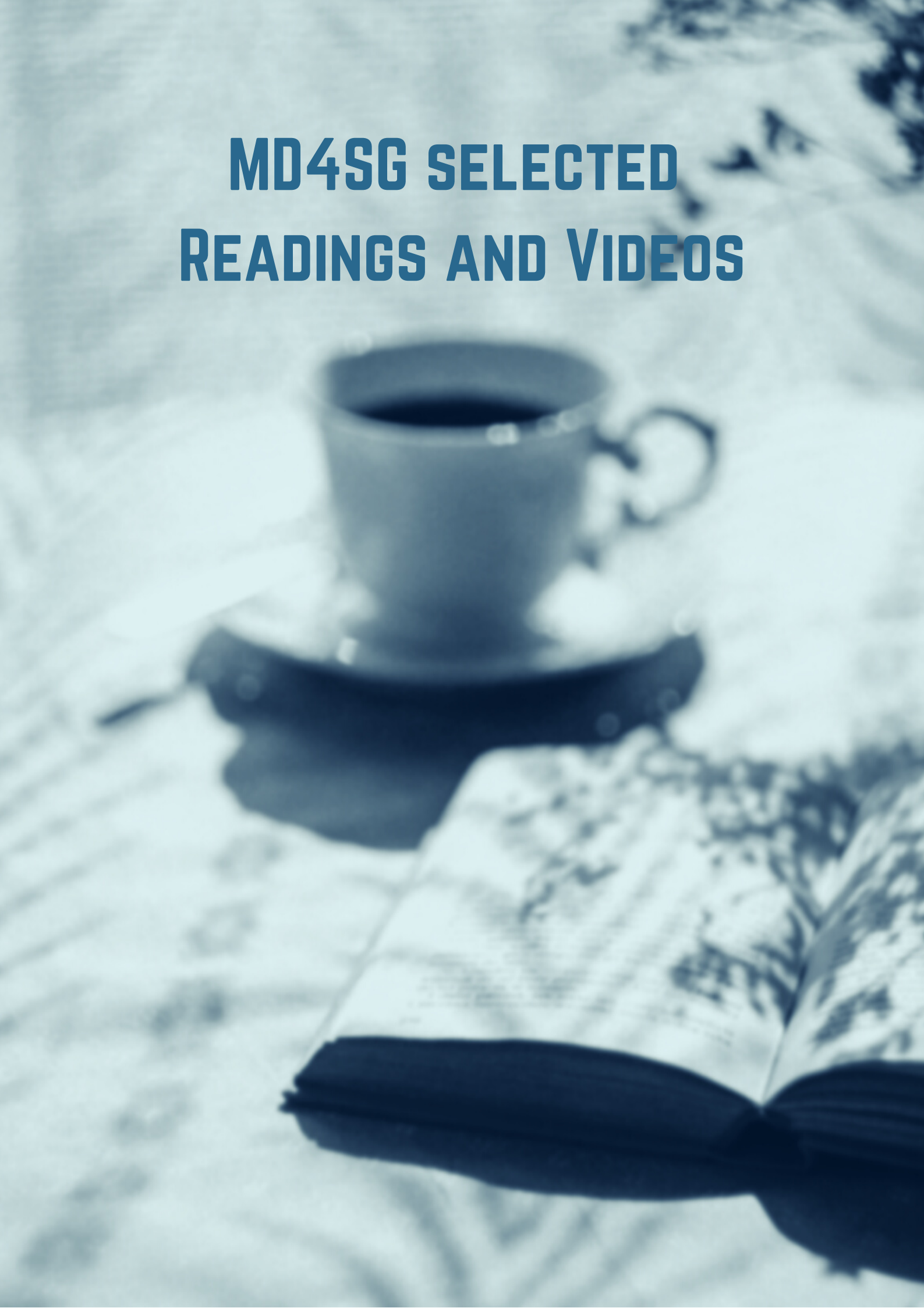
MD4SG Colloquium Talks

MOHAMMAD AKBARPOUR

ASSOCIATE PROFESSOR OF ECONOMICS, STANFORD UNIVERSITY

INEQUALITY–AWARE MECHANISM DESIGN: AN ECONOMIC FRAMEWORK FOR VACCINE PRIORITIZATION

Economists typically prescribe prices for guiding the allocation of scarce resources, arguing that the implicit selectivity of the price system helps allocate resources to those who value them the most. However, in many contexts, considerations such as fairness, equity, or consumption externalities provide arguments against using prices —and indeed, many ethicists and policymakers opt for schemes that allocate resources free of charge to certain selected groups. The price system, they argue, directs resources to those who are able to pay the most, which may not match up with true needs or moral desert. The question of whether to use prices or priorities played out in the context of allocating vaccines during the COVID-19 pandemic. Although prices could help identify individuals with the highest private values for vaccines, most countries opted for a priority system with rationing. This paper derives the optimal scheme from economic primitives. The key insight is that while social considerations may indeed limit the role that prices play in the optimal mechanism, they are typically not sufficient to rule out prices completely. As a result, a priority system with rationing may coexist with a pricing scheme; such a hybrid mechanism allows the designer to leverage observable information while simultaneously screening for unobservable characteristics.

MD4SG Colloquium Talks

RUCHIT NAGAR

YALE NEW HAVEN HOSPITAL RESIDENT AND FOUNDER OF KHUSHI BABY

UNLOCKING PRECISION PUBLIC HEALTH IN RAJASTHAN, INDIA

Ruchit Nagar, MD, MPH, is a combined internal medicine and pediatrics resident at Yale. He is also the cofounder and CEO at Khushi Baby, a digital health nonprofit working as the technical support partner to the Department of Health of India's largest state, Rajasthan. Ruchit trained at Harvard University and Yale University for his medical and public health degrees, respectively. He's been recognized as a Forbes 30 under 30 leader in healthcare and a distinguished young alumnus of the Yale School of Public Health. His interests include critical care, health systems change, impact evaluation, and machine learning for global health.

Public health in India is undergoing a digital transformation. Community health workers, newly equipped with smartphones, are now reporting beneficiary-level data with village-level granularity in real time. This talk explores how Khushi Baby and collaborators are using this new big data, from over 70,000 community health workers, to drive insights at the beneficiary, health worker, and community level.

YouTube link

MD4SG Colloquium Talks

AURELIO NUÑO MAYER

VISITING SCHOLAR AT HARVARD UNIVERSITY AND FORMER MINISTER OF PUBLIC EDUCATION IN MEXICO

THE HIDDEN PARADOX OF EDUCATION AND DEMOCRACY: THE POLITICS OF MOBILIZATION, EDUCATIONAL QUALITY, AND LIBERTY

Aurelio Nuño Mayer is a visiting scholar at Harvard University and the former Minister of Public Education in Mexico (August 2015–December 2017). Aurelio Nuño received a degree in political science and administration at the Universidad Iberoamericana, and he later earned a master's degree at the University of Oxford (UK).

He articulated one of the most comprehensive and ambitious education reforms in many decades in Mexico. The reform consisted of five structural changes: 1) a new national curriculum for twenty-first-century skills; 2) a new merit-based professional system for training, hiring, and promoting teachers; 3) a new model of school organization; 4) a national strategy for inclusion and equity; and 5) a new model of governance within the education system. Currently, he is a visiting scholar at the Harvard Graduate School of Education, and he is writing a book on the politics of education.

YouTube link

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MD4SG Colloquium Talks

HILARY FAXON

ASSISTANT PROFESSOR OF ENVIRONMENTAL SOCIAL SCIENCE, UNIVERSITY OF MONTANA

SMALL FARMERS, BIG TECH: RURAL LIVELIHOODS AND NETWORKED PROTEST IN MYANMAR

Hilary Faxon is an assistant professor of environmental social science at the University of Montana, currently on leave as a Marie Sklodowska-Curie Fellow in the Department of Food and Resource Economics at the University of Copenhagen. Hilary's research, teaching, and public scholarship investigate environment, development, and technology with a focus on social justice in the Global South.

While much social science to date on the digitization of agriculture has focused on large agribusiness, farms under two hectares account for 84% of farms worldwide and produce about 35% of the world's food. Many small farmers are located in the Global South, where the land provides a source of sustenance and a home for the farmers. Understanding the implications of increasing digital connection is critical for understanding rural economies, societies, and politics. This talk draws on a decade of anthropological and participatory research with farmers, activists, and policymakers in Myanmar to discuss how digital connection is shifting rural economics, culture, and politics, before and after the 2021 military coup.

[YouTube link]

Organizations Supporting Black Individuals in MD4SG-Related Fields

With Black History Month now behind us, we wanted to highlight organizations that support Black participation in some of the main disciplines recognized in Mechanism Design for Social Good.

- Economics
    - National Economic Association
    - The Sadie Collective
    - Research in Color Foundation
    - The Black Economists Network

- Mathematics and Statistics
    - National Association of Mathematicians
    - American Statistical Association Committee on Minorities in Statistics
    - Mathematical Sciences Institutes Diversity Initiative
    - Black in Mathematics Association
    - Conference for African American Researchers in Mathematical Sciences

- Social Work
    - National Association of Black Social Workers

- Operations Research
    - INFORMS Diversity, Equity, and Inclusion Ambassadors (DEI) Program

Please read more about these organizations and their statements in the Medium article.

[Read the article]

Interview with Michela Martinazzi and Josh Komarovsky

Michela Martinazzi and Josh Komarovsky are volunteers at the New York Community Action Project (NYCAP), which advocates for community control of the local city police service to prevent police brutality. NYCAP meets for a couple of hours each week to coordinate mass movements and lobbying, stressing the cruciality of both components in addressing the contrast between liberal values and political reality in New York. Michela's activism started at the age of eighteen, when she attended college in Florida and later joined NYCAP to advocate for accountable policing practices. Josh's connection to politics was through his contact with coworkers in exploitative jobs and his involvement in the student solidarity movement. The socioeconomic structure of New York, including the role of Wall Street, influences the policies that are implemented there, including policing. Michela suggests that building relationships and gaining trust can be achieved by being there to help, such as during the pandemic, and through simple conversations and actions. Engaging in coalitions is another way to build relationships, and NYCAP connects with other activist groups for support during its campaigns. Michela highlights the lasting impact of slavery and its financial benefits on the legal system and mindsets. Finally, Michela and Josh stress the importance of coalition building and supporting one another's movements.

Read the article

Interview with Andrew Chow

ANDREW CHOW
SENIOR VICE PRESIDENT, CHIEF COMPLIANCE OFFICER, AND HEAD OF STRATEGIC PROJECT MANAGEMENT AT ASIA INSURANCE, AND CHIEF RISK OFFICER AT AVO INSURANCE

Andrew Chow passionately advocates for the significance of environment, social, and governance (ESG) practices. He believes that ESG is not just a regulatory compliance issue, but also an ethical imperative that can positively impact environmental concerns, human rights, child labor, and corruption, benefiting society as a whole.

Andrew explains that the 27th Conference of the Parties of the United Nations Framework Convention on Climate Change holds immense importance in addressing missed commitments. He emphasizes that the negative consequences of irresponsible actions such as food security crises, mass displacement, and heat waves should serve as urgent reminders of the need for concrete accountability measures.

To rectify the disproportionate burden faced by developing countries, Andrew proposes prorated compensation by polluters based on their contribution to greenhouse gas emissions. Developed countries, responsible for the majority of pollution, should contribute more to the funding pool for mitigation efforts. Implementing this approach through channels like green bonds or inclusive insurance, considering factors like GDP, can help support sustainable development and ensure a fair distribution of responsibility.

Andrew's advocacy for ESG practices, his calls for accountability measures and prorated compensation by polluters, and his belief in the instrumental role of insurance companies in promoting ESG and understanding climate risks collectively highlight the significance of addressing ESGissues in a connected and engaging manner.

Read the article

GOODWILL AND AI

EDWARD J. "KINGFISH" LADA JR.

Mackenzie Jorgensen and Wendy Xu, with the help of Kristen Scott, prepared a Medium article related to the MD4SG Colloquium talk by Edward J. "Kingfish" Lada Jr. (president and CEO at Goodwill) about Goodwill's workforce development with artificial intelligence (AI). Edward is passionate about using advanced technologies like AI to improve the operations and impact of Goodwill. He believes that AI has the potential to equalize labor forces and create intergenerational wealth mobility.

Goodwill is a global social enterprise that operates through stores and donation centers where people donate apparel and goods. These donations are sold at affordable prices, and the proceeds support Goodwill's mission to help individuals with barriers to employment. However, Goodwill faces challenges such as the impact of fast fashion on donation quality, competition from online shopping, and the presence of third-party resellers. Edward recognizes the need to refine Goodwill's business model, automate operations, and provide underserved populations with opportunities to engage with evolving technologies like AI.

To address these challenges, Goodwill has experimented with technology in the workplace. They developed a proof-of-concept project called the MACH II, which used computer vision machine learning to categorize donated clothes. However, the project faced limitations and was discontinued. Edward has since initiated new projects, including 3D-printed concrete buildings and computer vision–based shoe identification for online sales. In addition, Goodwill is focused on building workforce apprenticeships and promoting advanced technologies while ensuring workforce preparedness and readiness.

Read the article

MD4SG
Organizers

Organizers

CHARLES CUI

FRANCISCO
MARMOLEJO COSSÍO

GEORGE OBAIDO

MATTHEW OLCKERS

ANA-ANDREEA
STOICA

LILY XU

MD4SG Initiative-Wide Leaders

Community Engagement

JESSICA FINOCCHIARO

Operations

SANDRO
RADOVANOVIĆ

Working Groups

NIKHIL GARG

SHUBHAM
SINGH

BHUSHAN
SUWAL

MD4SG Leadership

Membership & Website
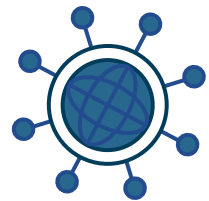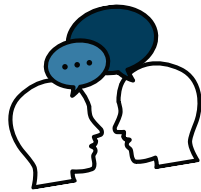

KEHINDE ARULEBA

SRITEJ ATTALURI

GUSTAVO DIAS

JUDE IMUEDE

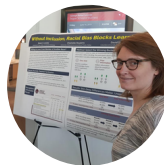SANDRO RADOVANOVIĆ

Community Engagement
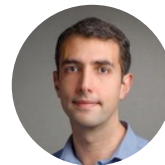
SAKINA HANSEN

CORINNA HERTWECK

SARA C. KINGSLEY

OFENTSE RICE

ROOZBEH YOUSEFZADEH

RENZHE YU

Social Media

Medium

MIR MASOOD ALI

ALEX DICHRISTOFANO

SANDRO RADOVANOVIĆ

RHEA TIBREWALA

Working Groups

For better or worse, government policy impacts most large-scale social problems. Because of this, the decision-making processes inside our democratic institutions are crucial: good processes offer paths for effecting positive social change, whereas bad processes may encourage changes that harm parts of the population. Many recent examples show that existing institutions fail to be responsive to needed change or to protect minority rights. Because of this, there is an urgent need to investigate modifications and additions to democratic processes that could improve their performance. Additionally, there is recent concern about the stability of democratic institutions worldwide, and preserving these institutions may require democratic reform. The MD4SG Civic Participation Working Group brings together researchers who are passionate about exploring ways to deepen democracies. Crucially, our group connects mathematical views on these questions with perspectives from social science and practical experience.

CIVIC PARTICIPATION

ORGANIZERS

PAUL GÖLZ   MANON REVEL

CONVERSATIONS WITH PRACTITIONERS

ORGANIZERS

KRISTEN SCOTT   WENDY XU

The MD4SG community aims to bridge research and practice, but many researchers have few opportunities to connect with practitioners. The aim of the Conversations with Practitioners Working Group is to learn from practitioners. We want to know their stories, understand their main challenges, and discover if tools from mechanism design apply to their domains. For our purposes, we define a practitioner as any person who works with (or on policy related to) marginalized and disadvantaged communities.

Working Groups

DEVELOPMENT

The MD4SG Development Working Group fosters collaboration and discussion among practitioners and academics to understand and tackle issues pertaining to the role and application of technology in addressing challenges in emerging nations and under-resourced settings. We study how techniques from algorithm and mechanism design, computational social science, and optimization can inform and help advance existing development policies and practices.

ORGANIZERS

NUREDIN ALI

CYNTHIA HABONIMANA

ILLENIN KONDO

ENVIRONMENT AND CLIMATE

ORGANIZERS

ANDREW ROBERTS

MATTHEW VONALLMEN

The MD4SG Environment and Climate Working Group aims to address environmental challenges, particularly those that exacerbate the climate crisis, through computational and economic lenses. We are a diverse group of researchers from a variety of academic disciplines and geographic locations.

WORKING GROUPS

INEQUALITY

ORGANIZERS

MERYEM ESSAIDI

SAMUEL TAGGART

The MD4SG Inequality Working Group studies how optimization, incentive design, and machine learning can mitigate or magnify social and economic inequality. We are especially focused on the provision and targeting of social programs: When and how should resources be directed specifically to the most vulnerable members of the population? How should these individuals be selected?

The MD4SG Algorithms, Law, and Policy Working Group focuses on the complex relationship between algorithms and mechanisms on the one hand and law and policy on the other hand. Some of the topics the group will work on include, but are not limited to, free speech, content moderation, antitrust, the use of "black box" machine learning models, data-driven algorithms, and decision-support tools.

ALGORITHMS, LAW, AND POLICY

ORGANIZERS

THOMAS GILBERT

AYSE GIZEM YASAR

IF YOU ARE INTERESTED IN THIS MISSION

JOIN US!

For any questions or thoughts, contact us at organizers@md4sg.com. Share your suggestions for future colloquium speakers here.

AND
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