GPAI | THE GLOBAL PARTNERSHIP ON ARTIFICIAL INTELLIGENCE

11-12 NOVEMBER 2021 PARIS

14h-15h

AI & PANDEMICS WORKING GROUP

Alison Cohen
Mila - Quebec Artificial Intelligence Institute,Canada

Michael O'Sullivan
University of Auckland, New Zealand

Eliot Layne
MC Gill University

Paul Suetens
KU Leuven, Belgium/European Union

Alice Oh
Korea Advanced Institute of Science and Technology, South Korea

Samuel Curtis
AI Policy Researcher and Project Manager
THE FUTURE SOCIETY

The AI & Pandemic Response Working Group's mandate

The Working Group will " foster and support the responsible development and use of AI-enabled solutions to fight COVID-19 and other future pandemics. With less than 1%vaccination in low-income countries, and G7 Leaders setting a target to develop diagnostics, therapeutics and vaccines within 100 days in a future crisis, we know that our mandate remains urgent and vital. We are pleased to present on two projects that can help GPAI and the wider international community on these challenges."

AI for public-domain drug discovery

Alice Oh

Co-Lead GPAI's Drug Discovery Project Associate Professor of Computer Science at the Korea Advanced Institute of Science and Technology School of Computing

Yoshua Bengio

Co-Lead GPAI's Drug Discovery Project

Founder and Scientific Director, Mila

AI-powered immediate response to pandemics

Paul Suetens

Co-Chair AI & Pandemic response

Co-Lead GPAI's AI immediate response to pandemics

Profesor Emeritus

KU Leven

Michael Justin O'Sullivan

Co-Lead GPAI's AI immediate response to pandemics University Lecturer & Researcher in Operations Research, Analytics & AI, University of Auckland

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AI for Public Good Drug Discovery

Recommendations for Policy Development

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“Necessity is the mother of invention”

Plato

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INFECTIOUS DISEASE CRISIS

- Covid-19 highlights a global vulnerability to infectious diseases
- Threat is growing, making proactive action critical
- Ex. Antimicrobial Resistant Pathogens

"Antimicrobial resistance is one of the greatest challenges to global public health today, and the problem is increasing"

World Health Organization

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CURRENT DRUG DEVELOPMENT ECOSYSTEM

Concentrated Influence

Dependent on big pharma to bring drugs to market

Stifling Innovation

Limited sharing of data, slowing innovation and increasing its cost

Skewed Priorities

Pursuit of profits rather than health needs

Vulnerable to Existential Risks

Ecosystem not conducive to fighting the health concerns of the future

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GOVERNMENT INVOLVEMENT NEEDED

- To steer health innovation towards public needs, government intervention is critical
- Intervention should catalyze the game changing potential of AI

Democratize drug development

Create scientific breakthroughs

Optimize the drug discovery and development process

Making drugs more affordable and health threats surmountable

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RECOMMENDATIONS

Stimulate R&D in under-researched & highly needed innovations for public health

Implement Open Science and Open Data policies as public funding conditions

Incentivize the use of AI throughout drug discovery pipeline

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GLOBAL SOLUTIONS TO A GLOBAL CHALLENGE

- Global health concerns transcend borders and necessitate a coordinated response
- Global data sharing will affect:
    - Efficiency of innovation
    - Type of drugs being developed
    - Accessibility of said drugs
    - Quality of care provided to minority populations
- A more equitable, efficient and effective approach to global health

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NEXT STEPS

Consultation

Implementation

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THANK YOU

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Our Recommendations

An Overview

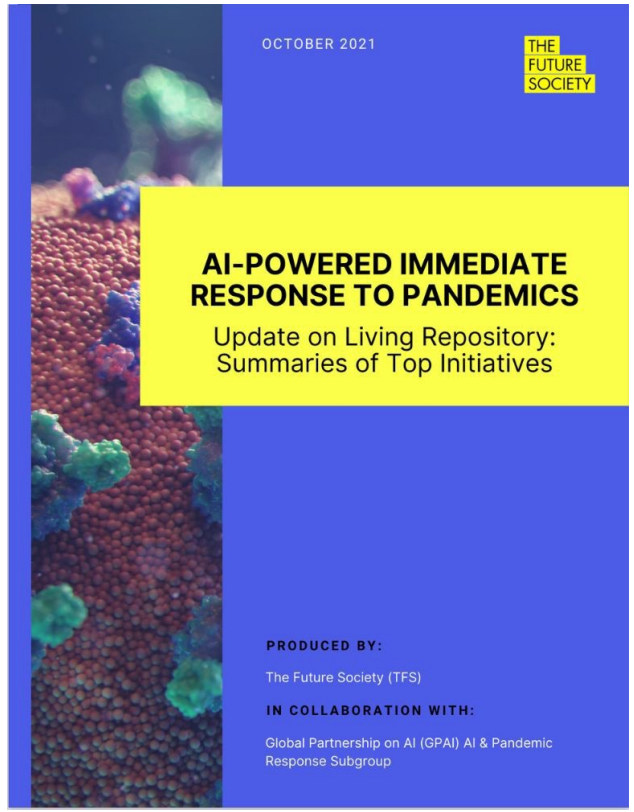
In order to stimulate the ecosystem for AI-driven drug discovery, governments should:

1. Invest in academic research in the field of AI-driven drug discovery, specifically to address health concerns that are not sufficiently interesting for the markets;
2. Incentivize AI capacity building across the drug discovery and development ecosystem;
3. Establish innovation procurement programs to stimulate industrial uptake of academic research;
4. Create financial incentives that move successful research to clinical trials when market incentives are not sufficient;
5. Pursue international collaboration to align research, innovation policy, technology access and capacity building;
6. Leverage an international organization appropriate to assist in managing international coordination on these goals.

AI POWERED IMMEDIATE

RESPONSE TO PANDEMICS

Update on Living Repository : Summaries of Top Initiatives



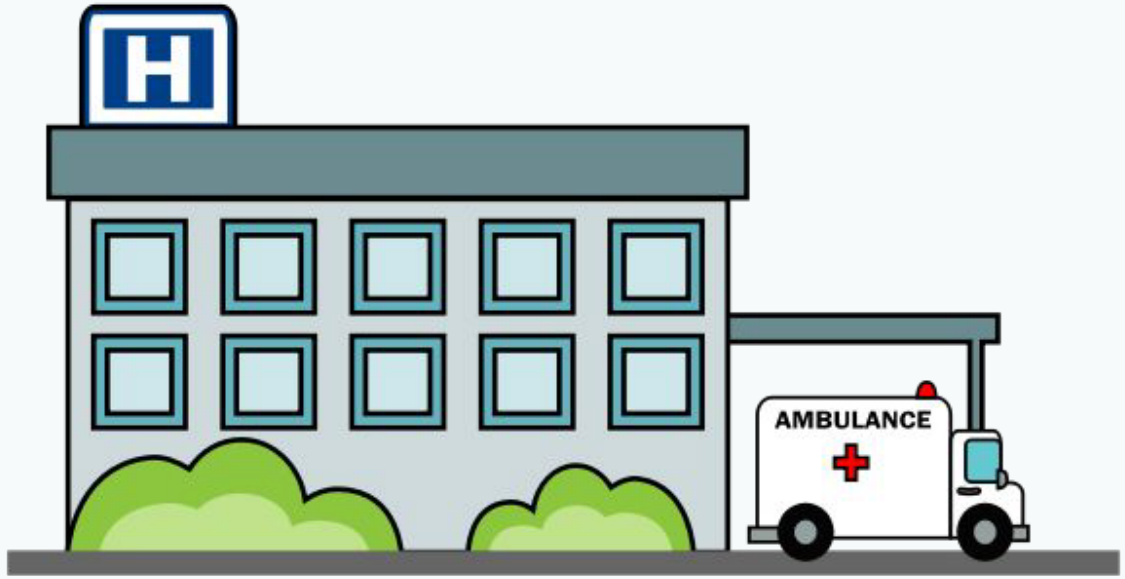
CRITERIA

1. Background
2. Origin
3. Categorisation
4. Scope
5. Data

66
Initiatives
evaluated

11
Initiatives
shortlisted

Managing Hospital Occupancy



Modelling the spread of COVID-19 based on the prevalence of mask-wearing

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THANK YOU

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