

AI SINGAPORE

AI in Health Grand Challenge

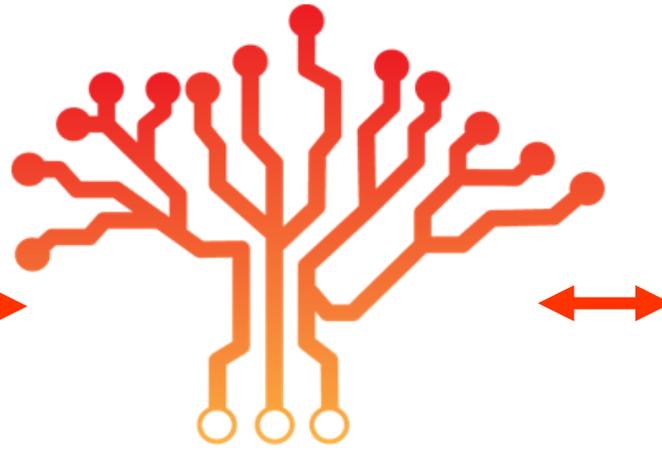
For 7th ITU/WHO Meeting

12 Nov 2019

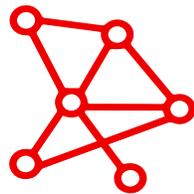
Agenda

- AI Singapore Overview
- AI in Health Grand Challenge
 - AI in Health Grand Challenge Overview
 - Winning Teams

**NATIONAL
RESEARCH
FOUNDATION**
PRIME MINISTER'S OFFICE
SINGAPORE



AI SINGAPORE



AI RESEARCH

Invest in the Next Wave



AI TECHNOLOGY

Address National Challenges



AI INNOVATION

Increase Industry Adoption

What are AI Grand Challenges?

Important issues and problems faced by Singapore and the world, that **can be effectively addressed with AI technologies and innovations**

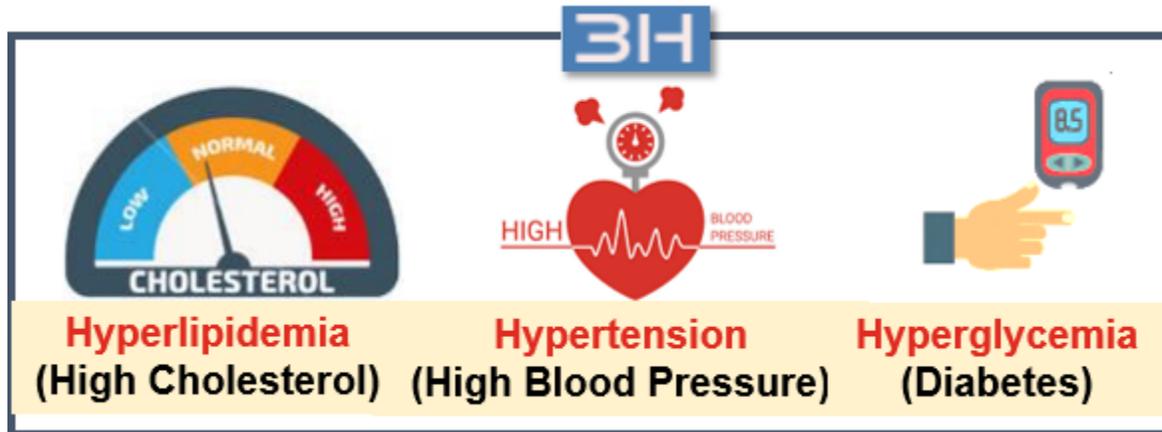


Inspiring – impactful – measurable

with long-term research goals to demonstrate breakthroughs, uncover technical and commercial surprises that can bring about sectoral transformation.

AI in Health Grand Challenge

“How can Artificial Intelligence (AI) help primary care teams stop or slow disease progression and complication development in 3H – patients by 20% in 5 years?”



Program Highlights:

- 5-year, 2-staged
- Total budget: S\$35m (US\$25m)
- AI technologies and innovations to enhance primary care
- Multidisciplinary, private-public teams and consortia
- International collaborations

- Top 3 chronic diseases¹
- Top 3 causes of polyclinic attendance¹
- Top 3 in 18-69 years age group
- Estimated 1.5M residents affected by 2020

AI-enhanced primary care for good health and well-being

(Contributing to UN SDG3: To ensure healthy lives and promote well-being for all at all ages)



Aspirational Goal

By 2030 – Halve the prevalence of 3H complications through AI-enhanced primary care across Singapore

Challenge

How can AI help primary care teams stop or slow disease progression and complication development in 3H patients by 20% in 5 years?

3H: Hypertension, Hyperglycemia, Hyperlipidemia

Outcome Indicators

Relevant medical outcomes, surrogate endpoints, and/or service levels

Functional Metrics

Accuracy, efficiency, usability, affordability, scalability, connectivity, reproducibility, adaptability, safety

Solution Foci

Risk prediction, diagnoses and treatment, care plans, compliance and behaviour, communications, and care resources

Technology Anchors

Expert AI (provider-centric), Team AI (co-ordinated)



AI in Health Grand Challenge Grant Awardees

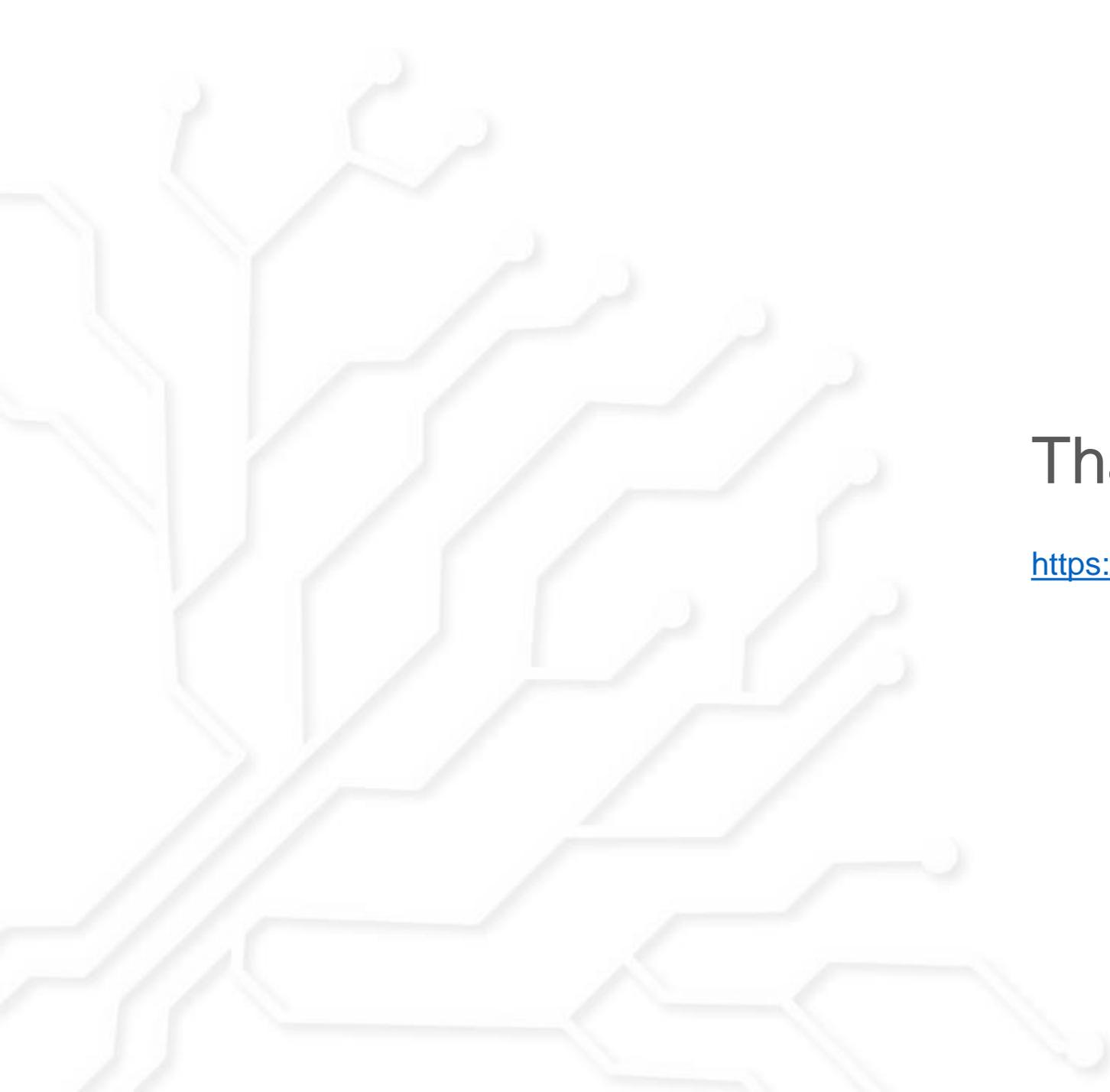
Team	PIs & Collaborators	Project Title	Project Summary
1	<p>Lead PI: Wynne HSU, NUS Team of 30 Co-PIs and Collaborators Institutions: NUS (SoC &DS),</p>	<p>JARVIS-DHL - Transforming Chronic Care for Diabetes, Hypertension and Hyper-Lipidemia with AI</p>	<p>The team will develop an AI system called <i>JARVIS-DHL</i> to gather local healthcare data in order to create AI algorithms and models. This will facilitate practice of evidence-based personalised care and shared- decision making by primary care physicians.</p> <p>The project aims to integrate multiple solutions into a consolidated AI platform which can be used to improve the 3H care delivery process.</p>
2	<p>Lead PI: Beng Chin OOI, NUS Team of 19 Co-PIs and Collaborators Institutions: NUS, NUHS</p>	<p>Explainable AI as a Service for Community Healthcare</p>	<p>This proposal focuses on advanced AI with prototype devices built for deployment and testing in a community setting. This will:</p> <ul style="list-style-type: none"> • apply rigour in data science and through AI as a service, allow AI results to be used in precision medicine, preventive advices and automatic lifestyle coaching such as food logging. • help in designing a community deployable device for patients with chronic diseases
3	<p>Lead PI: Chunyan MIAO, NTU Team of 13 Co-PIs and Collaborators Institutions: NTU, SMU, NHG</p>	<p>An end-to-end Adaptive AI-Assisted 3H Care (A3C)</p>	<p>The proposal covers both the assessment and intervention for 3H patients. The system periodically assesses the status of 3H patients, as well as identifies pre-3H persons based on early behavioural patterns, health symptoms and other non-medical factors. The system will also provide individual and group-based adaptive, long-term interventions through gamification.</p>

Ensuring the Success of the Grand Challenge

- National Data Access Framework
 - IHIS MicroAccess Lab at our building
 - Tokenized data access protocols and federated databases
- Innovative IP and Technology Access Model
 - Simple, flexible, and scalable
 - Facilitates future research, practical application, and commercial deployment
- International collaboration and exchange
 - log in with *institutional email*

<https://collaboration.aisingapore.org/>





Thank you

<https://www.aisingapore.org/>