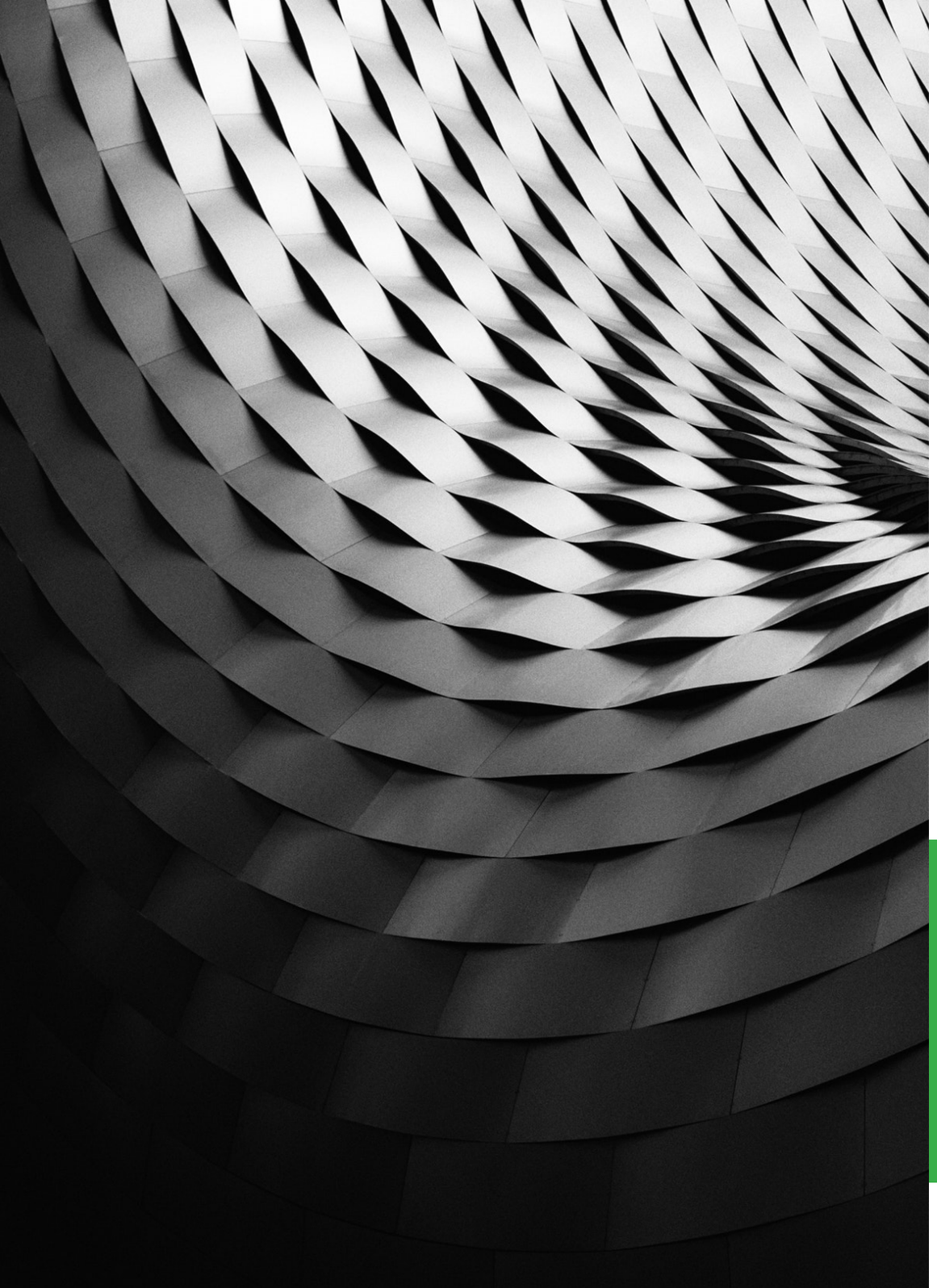
SINGAPORE BIODESIGN
Offerings



Modelled after the established Biodesign Programme at Stanford University, this capability development initiative aims to train and nurture the next generation of health technology innovators for Singapore and Asia.

Launched in 2010, the Singapore-Stanford Biodesign (SSB) Programme is a joint partnership between the Agency for Science, Technology and Research (A*STAR), the Economic Development Board (EDB) and Stanford University.

Since 5 December 2018, SSB has been re-named as Singapore Biodesign (SB), funded by the National Research Foundation, signifying a move to being more Asia-centric and implementation focussed whilst keeping up with industry trends to bring about economic benefits and healthcare value through HealthTech innovation training.

MISSION

High-touch development of HealthTech talent centered on needs-based approach and quality industry mentoring to accelerate health technology innovation and adoption for Asia's (SG, China and ASEAN) unmet healthcare needs.

VISION

To be Asia's leading HealthTech talent development and knowledge partner for accelerating health technologies innovation towards commercialization and adoption.

Overview

TALENT

Shift from learning to doing: Enhancing Biodesign needs-driven methodology through hands-on and experiential training

INNOVATIONS

Contextualizing for implementation by understanding global market needs and supplementation with real-world industry mentors for successful startup creation and healthcare adoption

COMMUNITY

Increased interactions with Singapore community & regional networks through talent placement and collaborations to advance innovations

TALENT

High-touch mentoring of multi-disciplinary teams in the healthtech innovation process.

Fellowship

The flagship Singapore Biodesign (SB) Fellowship is an intensive 10-12 month hands-on team-based training on the entire process of needs-based health technology innovation, focussed on developing new health technologies for unmet clinical needs in Asia.

The fellowship will feature high-touch training and mentorship by esteemed mentors from Singapore Biodesign and our joint program partner, Stanford Byers Center for Biodesign. The fellowship mentors span a wide range of experience from various disciplines such as clinical, technical, venture and industry.

2017 Fellows' visit to Cardiology Suite, Awal Bros Makassar, Indonesia, hosted by Dr. Bam Bang Budiono.

2014 Fellows taking a tour of Venta Medical's manufacturing plant in US.

1. Multidisciplinary team of 4-6 Fellows comprising of engineers, doctors and business/industry professionals will have privileged access to mentors and experts from the wider SB network, both in Silicon Valley and in Asia.

2. Immerse in regional countries i.e China, Indonesia, to investigate unmet clinical needs and develop understanding of the local healthtech ecosystem.

3. Spend 4-6 weeks in Stanford to further refine and develop implementation plans for their top projects under the guidance of experts from Silicon Valley, so as to secure follow-on funding for continue their projects.

4. Receive stipend, overseas living allowance and international travel support.

Programme Structure

Example of the 10-12 month SB fellowship calendar showing the iterative 'Identify', 'Invent' and 'Implement' phases of Biodesign.

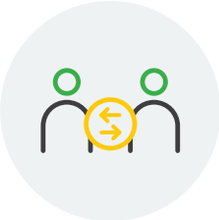
Enhanced Features from FY19

JOINT PROGRAM PARTNER WITH STANFORD BIODESIGN

Sharing of best practices in the Biodesign methodology from Stanford Biodesign and access to Silicon Valley's healthtech network

NEEDS VALIDATION IN APAC REGION

Fellows get first hand insights into Asian healthcare needs from both clinical and non-clinical settings



HIGH-TOUCH INDUSTRY MENTORING

Fellows get access to a dedicated stellar mix of clinical, Biodesign and industry mentors with >100+ years of combined experience

INCREASE ON-THE-JOB LEARNING

Fellows will derive greater experience and insights by applying the Biodesign process through longer-term hands-on attachments to innovation projects

INCREASE FELLOWS INTAKE

2 teams of 3 pax each will be selected from FY20 onwards, spurring greater sharing across teams and healthy competition

Biodesign Workshops

SB offers a selection of Biodesign workshop and healthtech training initiatives for industry and medical professionals working in the area of health technology innovation who would benefit from having a framework to de-risk their innovation projects.

Through such workshops, SB aims to create awareness around the successful Biodesign methodology, to aid in the development of health technologies innovation.

The workshops will feature case-studies, opportunity for hands-on learning and interaction with esteemed speakers in the healthtech industry.

DEEPER ASIA FOCUS

With a deeper focus on Asia and implementation towards commercialization and adoption, SB's workshops and training offerings will provide Asian case studies and targeted consultations with domain experts.

NEEDS-DRIVEN APPROACH

SB aims to provide participants with ample opportunity for hands-on training to appreciate the Biodesign needs-driven process. Participants will be guided by experienced trainers and get to work in a multi-disciplinary group setting to tackle real world examples.

Teaching Biodesign through real-world case studies

Workshop participants from multi-disciplinary background learn from interactive sessions

TALENT: BIODESIGN WORKSHOP

Offerings

1–DAY **INTRODUCTORY BIODESIGN SEMINAR**

For uninitiated aspiring inventors

3–DAY **EXPERIENTIAL LEARNING WORKSHOP**

For project teams to learn and apply Biodesign process through multi-disciplinary learning and networking

5–DAY **PROFESSIONAL BOOTCAMP**

Featuring esteemed guest lecturers, networking and team building opportunity for mature teams

FEE

Available on enquiry, minimum attendance required.

WORKSHOP CUSTOMIZATION

On special request, customized versions of the Biodesign workshop may also be organized depending on audience and deliverables.

PAST WORKSHOP PARTICIPANTS

Cleveland Clinic · Tan Tock Seng Hospital · 서울아산병원 Asan Medical Center · Universiti Kebangsaan Malaysia · dongguk University · Agency for Science, Technology and Research · Johnson & Johnson

TALENT: HEALTHTECH TRAINING PLATFORM

Enhanced Offerings: One-stop Platform for HealthTech Innovation Training

Following on the introductory Biodesign workshops, SB aims to serve as a one-stop platform for the healthtech innovation training needs of the community throughout the year.

1. Provision of free open-access lectures to general audience
2. Thematic and dedicated hands-on workshop by esteemed domain experts in areas that require deeper dive; Fee: S$500/pax/0.5d workshop

	TOPIC	LECTURE	WORKSHOP
	Healthtech Innovation Procsss Overview: 5-day Biodesign Bootcamp		✔
IDENTIFY	Introduction to MedTech / HealthTech Industry	✔	
IDENTIFY	Asia Healthcare System and Medical Device landscape: Singapore	✔	
IDENTIFY	US Healthcare System and Medical Device landscape	✔	
IDENTIFY	Asia Healthcare System and Medical Device landscape: China	✔	
IDENTIFY	Asia Healthcare System and Medical Device landscape: Indonesia	✔	
IDENTIFY	Healthtech Assessment: Value and Reimbursement		1D workshop
INVENT	Design Thinking Lecture and Workshop: Ideation, Rapid Prototyping		0.5D workshop
INVENT	Product Engineering: R&D, Engineering risks, Quality		1D workshop
INVENT	Part I: Digital Health 101		0.5D workshop
INVENT	Part II: Mobile App Development - Lecture	✔	
INVENT	Part III: Health Data Query		0.5D workshop
INVENT	Regulatory Workshop		0.5D workshop
INVENT	IP & Protection in China	✔	
IMPLEMENT	Quality Management		0.5D -1D workshop
IMPLEMENT	Clinical Strategy	✔	
IMPLEMENT	Business Model 3-Day Workshop		3D workshop
IMPLEMENT	Operating Plan and Financial Modelling	✔	
IMPLEMENT	Valuation, Deal Structuring, Deals Negotiation	✔	
IMPLEMENT	Understanding Term Sheet	✔	

INNOVATIONS

SB is committed to collaborate with like-minded entities in the local and regional ecosystem to increase the throughput of projects to achieve economic value and healthcare adoption.

Innovations

SB aims to generate a successful project pipeline featuring:

1. In-house greenfield projects from our fellows (current and alumni) and staff;
2. Through partnerships and project-based mentoring programmes; and
3. The provision of an engineering lab with in-house product engineer to support early engineering prototyping needs (Tinkerlab)

These initiatives will help empower would-be entrepreneurs with the right skills and to encourage and catalyze spin-offs on sufficiently de-risked projects.

SB-ORIGINATED INNOVATIONS

BIODESIGN TRAINING IN THE FELLOWSHIP PROGRAMME

3-4 fellows work on 1 fellowship project and 1 public-grant

2 MONTHS
1st Singapore Phase

2-3 WEEKS
Needs validation in regional countries

5 MONTHS
2nd Singapore Phase

6 WEEKS
Stanford Phase

2 MONTHS
3rd Singapore Phase

IN PARALLEL ON-THE-JOB TRAINING

2 Fellows attached to 1 public-grant funded project each to assist in their commercialisation plans (Pilot partnership in FY19)

Example:

NHIC National Health Innovation Centre

- **Access to Clinician PI**
- **Access to Industry Mentors**
- **Regional Needs Validation**
- **Design for pilot manufacturing**

- **Fundraising**
- **Preparation for regulatory submission**
- **Pre–clinical/clinical POC and POV trials**

SB–ENABLED INNOVATIONS

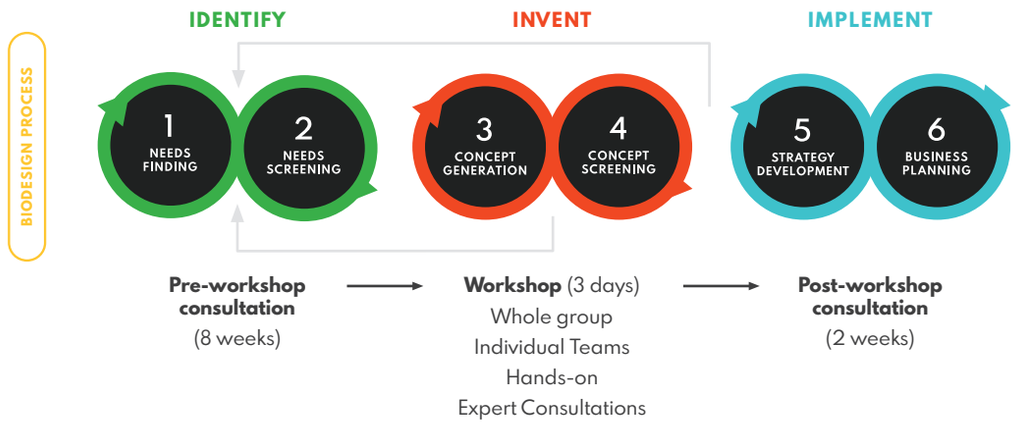
On a competitive basis, SB will also be offering support for up to 1-2 project teams per year for a 9-12 week project-based mentoring programme.

SB support may include the following:

- Project Management
- Access to SB mentors
- Curation/Validation of need
- Early engineering evaluation

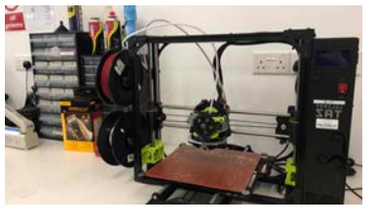
In the end, SB aims to guide the formulation and/or advancement of a de-risked project worthy of follow-on funding.

Example of collaboration to guide project scoping and curation:



TINKERLAB

Over the years, SB has acquired a range of engineering assets and has set up a rapid prototyping space at the engineering lab at A*START Central. The space has been upgraded to improve the access of its equipment and and in-house services to support the early engineering needs of healthtech projects.



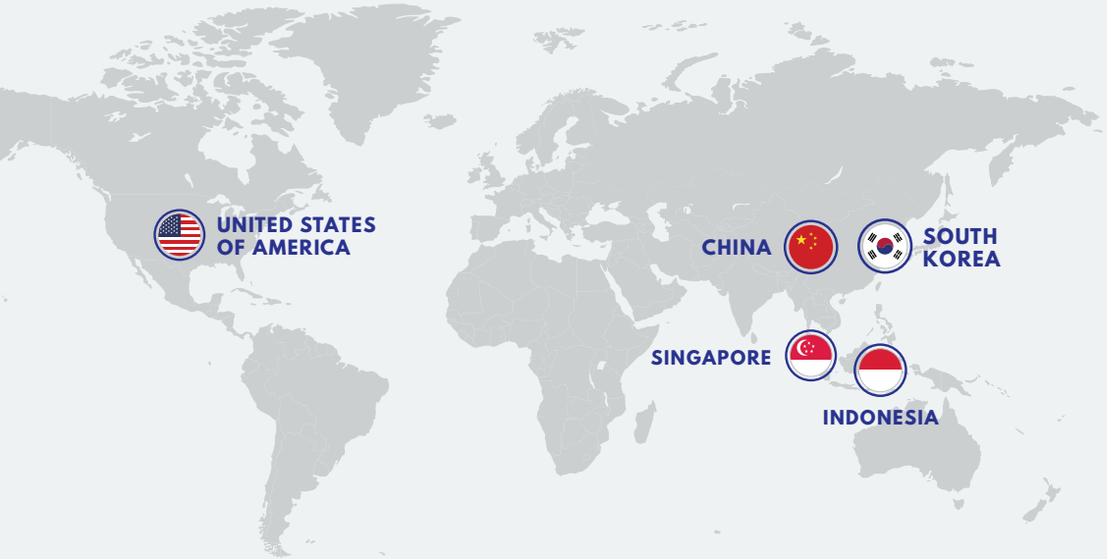
COMMUNITY

Our community is the most important and valuable asset. SB aims to build on its local and international community to advance our health technologies goals.

Community

SB has been playing the role of an enabler to bring together various players of the HealthTech ecosystem in Singapore and Asia.

SB's partner network to date, comprises of:



INDUSTRY NETWORK

59 MENTORS/ SPEAKERS

7 CORPORATE MEMBERS

ACADEMIC PARTNERS

9 UNIVERSITIES

CLINICAL PARTNERS

15 HOSPITALS & MEDICAL CENTRES

1 HOSPITAL CLUSTER

ACROSS DIFFERENT CONTINENTS

AND GROWING.

SB hopes to provide the community with thought leadership and perspectives on the challenges and future of the medical technology industry.

Further partnerships, both locally and regionally, will continue to be forged and maintained as SB continues to focus on people as the core of our programme.

Community

1 ALUMNI EVENTS

Alumni engagement will be an important component and enabler of SB's mission as we see the emergence of like-minded 'Biodesigners' spearheading local healthtech initiatives and forging new collaborations. Our alumni events includes social gatherings featuring alumni sharing, networking opportunities with invited guests and open Q&A sessions to garner feedback for SB's activities. They will also include intimate fireside chats for focused conversations with invited experts to bolster learning.

Homecoming 2017: Gathering of our fellows, class students and mentors

MOU Signing Ceremony between Singapore Biodesign and National Health Innovation Centre in Dec 2018

2 LOCAL & REGIONAL PARTNERS

SB is actively involved in forging its local and regional partner network to provide thought leadership for its talent base and to encourage the development of a regional collaborative hub with a view for implementation.

3 ANNUAL THOUGHT LEADER SERIES

SB organises an annual Thought Leaders Series, where invited healthtech luminaries will share their experience on the importance of needs-driven innovation with an added focus on Asia.

TLS 2018 featuring esteemed international speakers discussing opportunities surrounding diabetes technology innovation in Asia

Organisation Structure

DR DANNY SOON
Senior Director, HBM, BMRC
Programme Director, SB

STEERING COMMITTEE

DR MARY KAN
Deputy Programme Director

TALENT

FELLOWSHIP

MS CHERYL CHNG
- Fellowship Head

MS SHASI KALA DEVENDRAN [1]
- Program Ops Executive

FELLOWSHIP MENTOR PANEL

TALENT

WORKSHOP

DR MARK CHONG
- Curriculum Co-Head

MS FIONA LOKE
- Curriculum Co-Head

INNOVATION

PROJECTS

MR TAN HEE CHOON
- Principal Product Engineer

MR HUANG MING-CHIEN
- Innovations/Workshops Biz Dvpt Manager

COMMUNITY

MARKETING & EVENTS

DR MARY KAN
- Industry Partnerships Head

MS ADELINE LIM [1]
- Marketing & Events Executive

MR WILLIAM GREENE
- Resident Writer

LEGEND
- Headcount
- Adjunct / Consultant

[1] Matrix structure adopted; Program Ops team to be interfaced with specialty tracks; '1' indicates dual roles in matrix structure

Steering Committee

PROF WONG TIEN YIN (CHAIRMAN)

Deputy Group CEO, Research and Education, Singhealth

Medical Director, Singapore National Eye Centre

Academic Chair, SingHealth Duke-NUS Ophthalmology and Visual Sciences Academic Clinical Programme

PROF LONDON LUCIEN OOI

Professor & Associate Dean, Admissions, Recruitment and Financial Aid, Duke-NUS

Clinical Faculty, SingHealth Duke-NUS Surgery Academic Clinical Programme

Senior Consultant, HPB & Transplant Surgery, SGH

PROF PAUL YOCK

Founder & Director, Stanford Byers Center for Biodesign, Stanford University

MR FREDRIK NYBERG

Managing Director, Asia Pacific, MedTech Innovator

MR JOHNNY TEO

Director, Health & Biomedical Sciences, EnterpriseSG

MR JEAN-LUC BUTEL

Global Health Advisor, K8 Global

PROF TAN SZE WEE

Executive Director, SERC, A*STAR

DR DANNY SOON

Senior Director, HBM, BMRC, A*STAR

Programme Director, Singapore Biodesign, A*STAR

Fellowship Mentor Panel

MR ALOK MISHRA

Industry Mentor

CEO , Value Addition

PROF LONDON LUCIEN OOI

Clinical Mentor

Senior Consultant, HPB & Transplant Surgery, SGH

MS FLORENCE LEONG

Industry Mentor

Founder, Director, Kosmode Health Singapore Pte Ltd

MR PEH RUEY FENG

Founding faculty and Singapore Biodesign Mentor

CEO and Co-Founder, Advent Access

PROF CHRISTOPHER SHEN

Stanford Biodesign and Global Partnerships Mentor

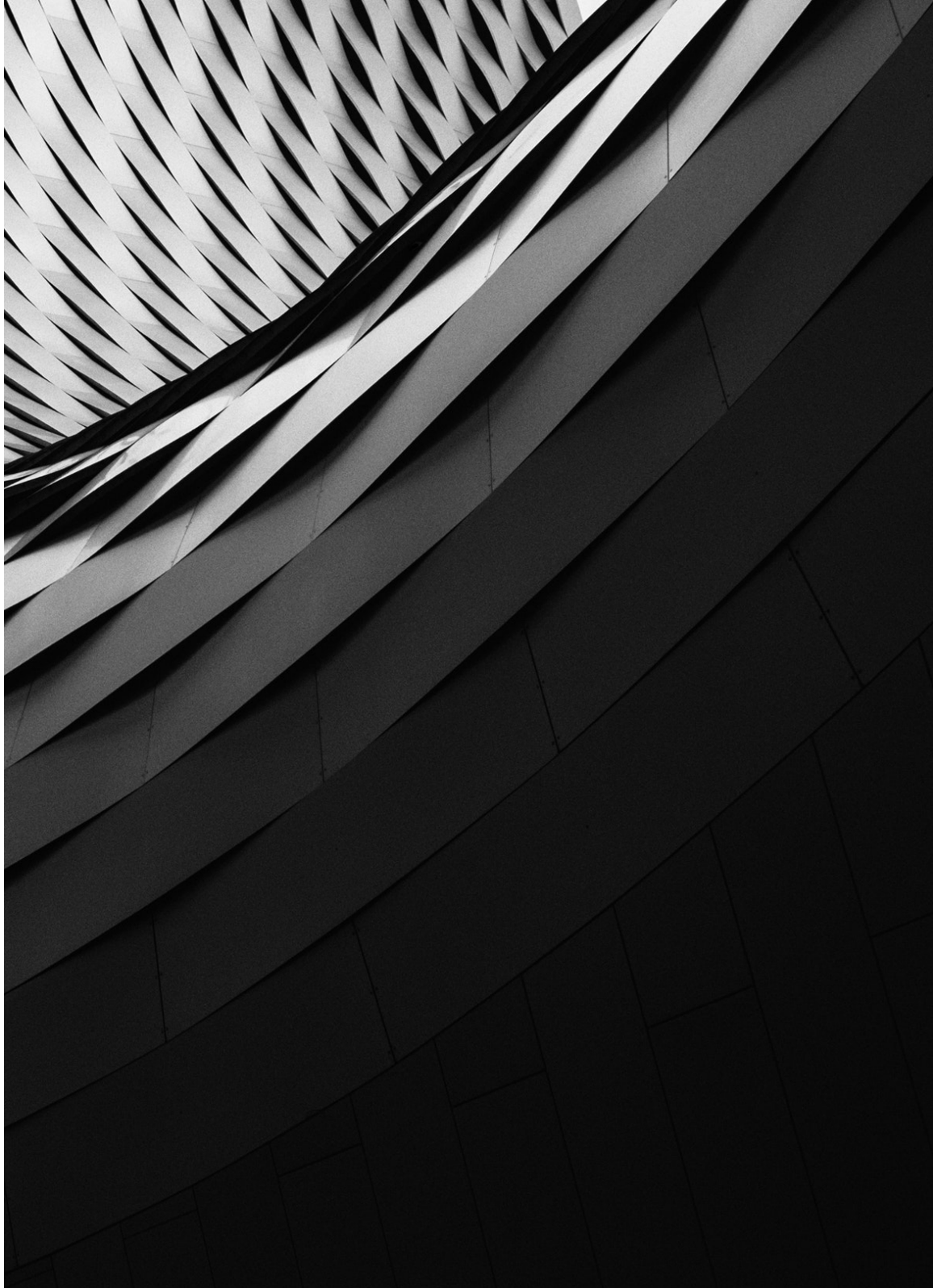
Managing Partner, Qiming Ventures

MS RITU KAMAL

Stanford Biodesign Mentor

VP, Product, Fabric Genomics

Empowering Asia's Healthtech Innovators of Tomorrow



CONTACT US

EMAIL: SSBENQUIRY@SCEI.A-STAR.EDU.SG
TEL: +65 8793 6406

ADDRESS: 79 AYER RAJAH CRESCENT
#05-03 SINGAPORE 139955

www.a-star.edu.sg/SB

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HOST INSTITUTION:

Agency for Science, Technology and Research
SINGAPORE

JOINT PROGRAM PARTNER:

STANFORD BYERS CENTER FOR
BIODESIGN