



Science + Engineering + Design + Art

Dr. Kitty Yeung


www.artbyphysicistkittyyeung.com



@artbyphysicist



Kitty Y. M. Yeung

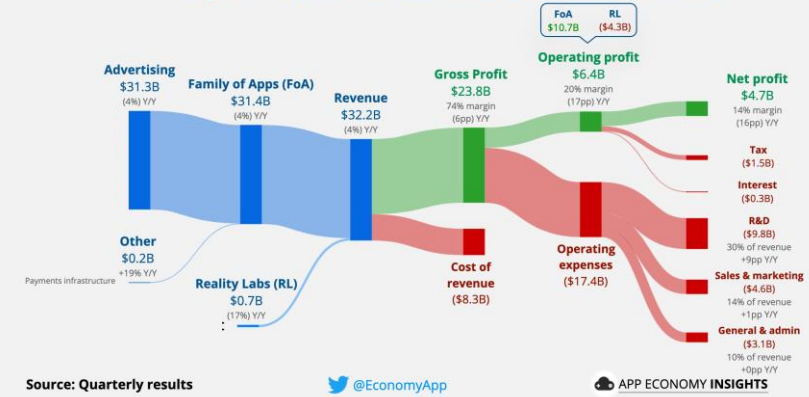


In Earth year 2020,
humans thought that
automated machines and
their digital replica could
relieve them from tedious
and repeated labor.

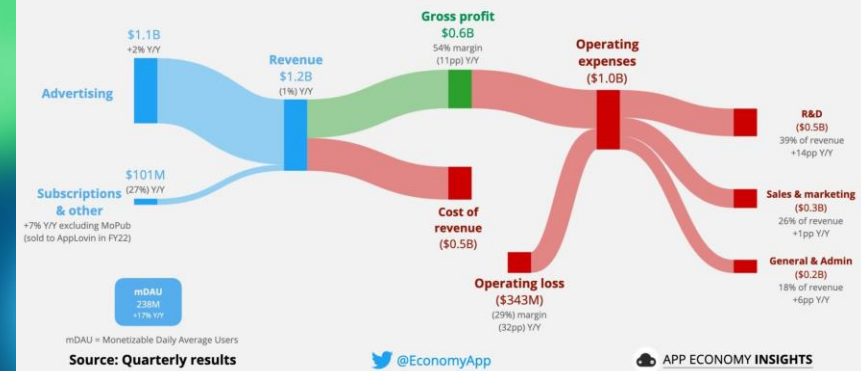
Then they could devote
themselves in more creative
and artistic endeavors.
For centuries, they pursued...

2019.10.11.

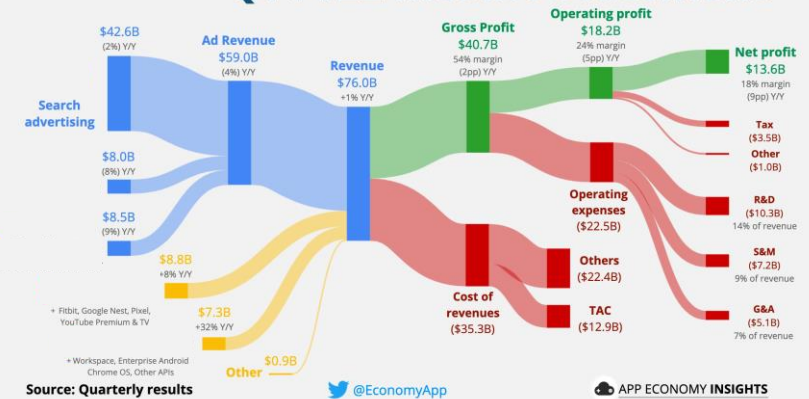
Q4 FY22 Income Statement



Q2 FY22 Income Statement

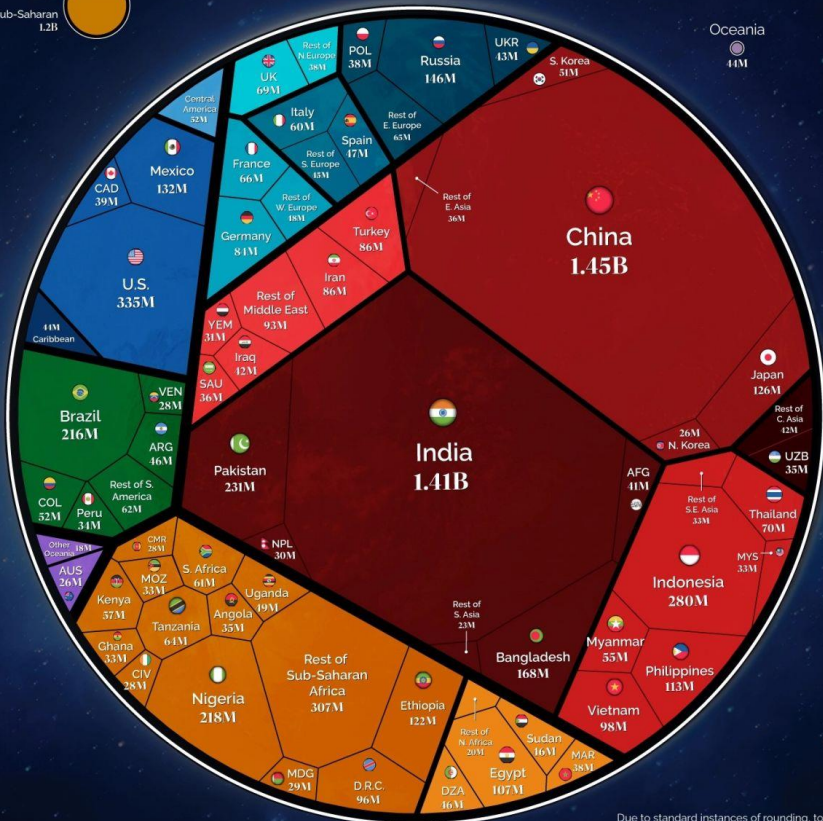
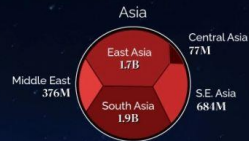


Q4 FY22 Income Statement



World's Population at 8 BILLION PEOPLE

Around November 2022, the world will reach a pivotal milestone—8 billion global population. What is the distribution of this population, by region and country?



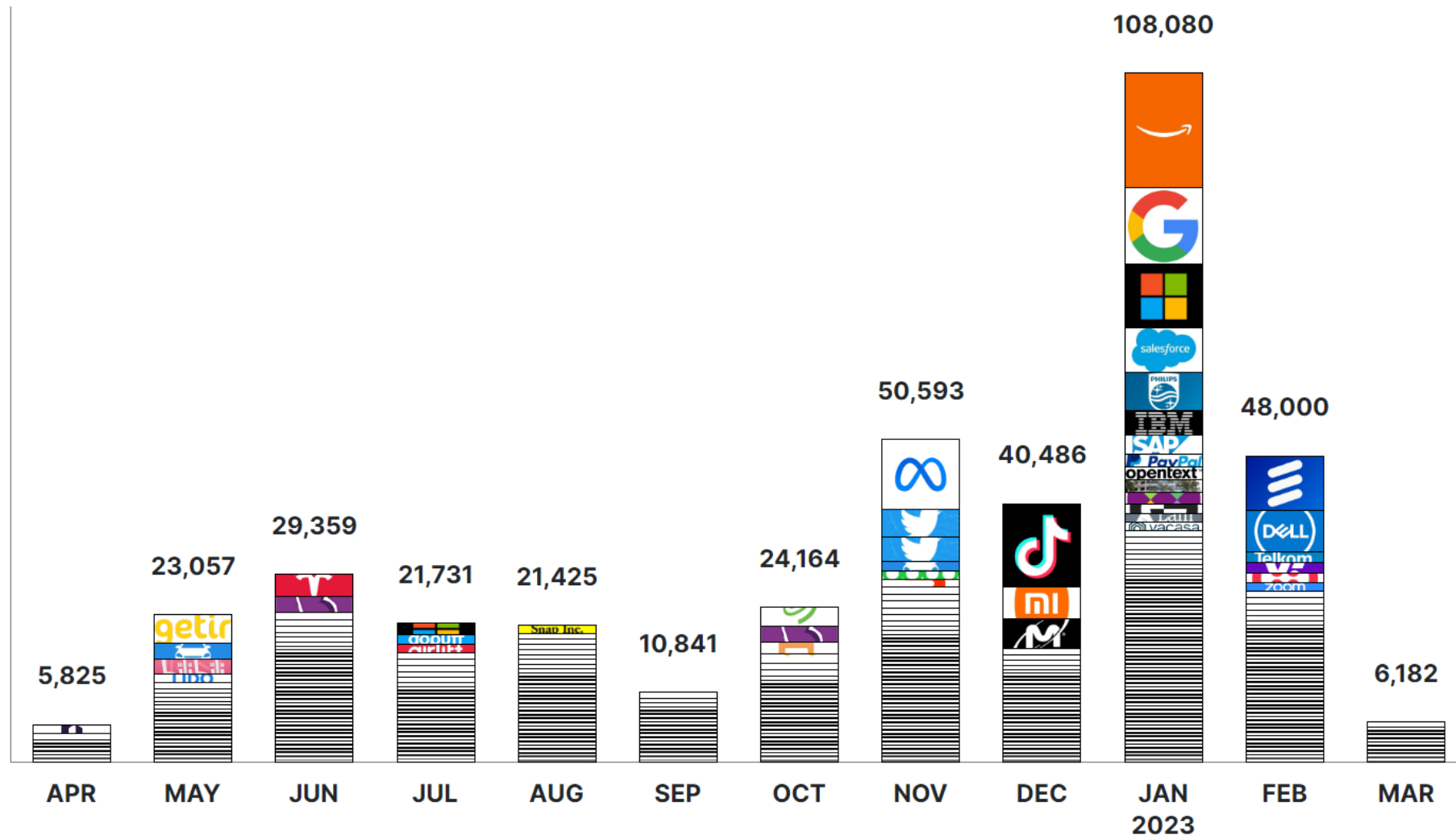
Due to standard instances of rounding, totals may not add up perfectly to regional sums.

Source: UN Population Division, 2022.



of Tech Employees Let Go

as of March 8, 2023




source: trueup.io/layoffs

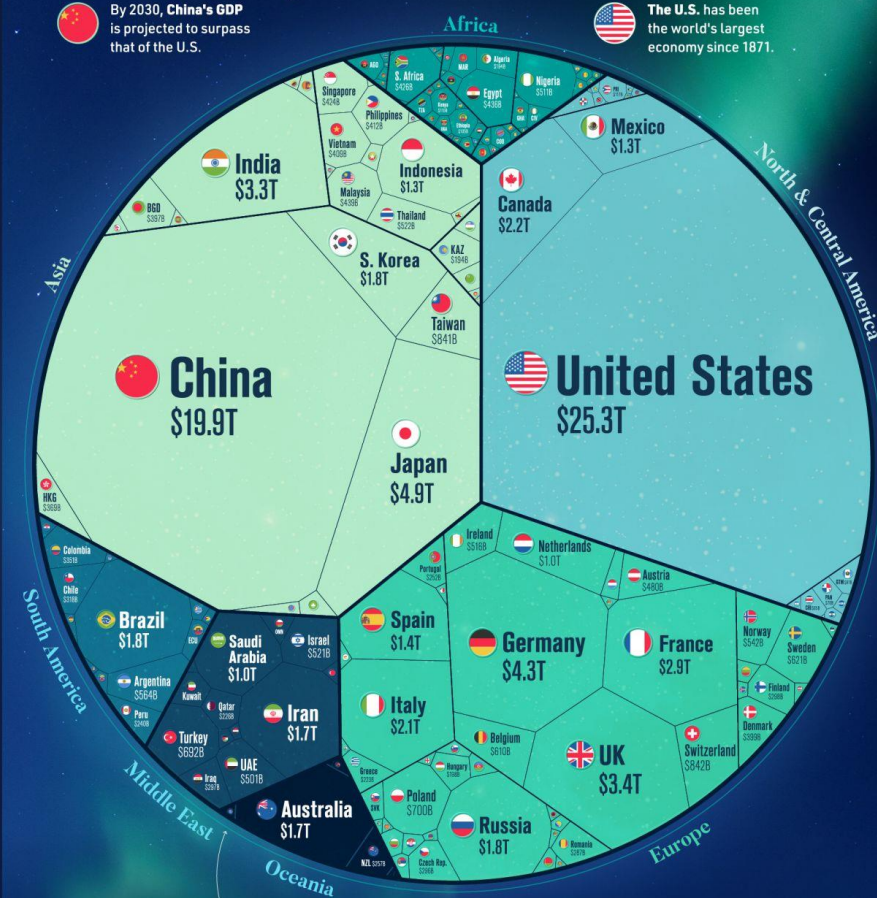
The \$100 Trillion World Economy


GLOBAL GDP 2022


Despite conflict and looming stagflation, the global economy will hit an impressive new milestone, reaching **\$104 trillion**, according to the latest IMF projections for end of year.

 By 2030, **China's GDP** is projected to surpass that of the U.S.

 The **U.S.** has been the world's largest economy since 1871.




 Many of the world's smallest economies are located in the Oceania region, such as **Tuvalu** with a GDP of \$66 million.

 **Ireland** is expected to be the fastest growing economy in the Eurozone, with a 5.2% increase this year.

*2022 data was not available for a handful of countries, including Ukraine and Pakistan.

Source: IMF (April 2022)





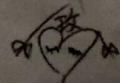
Only to find out
that nature has
already been doing art
so much better
without them...



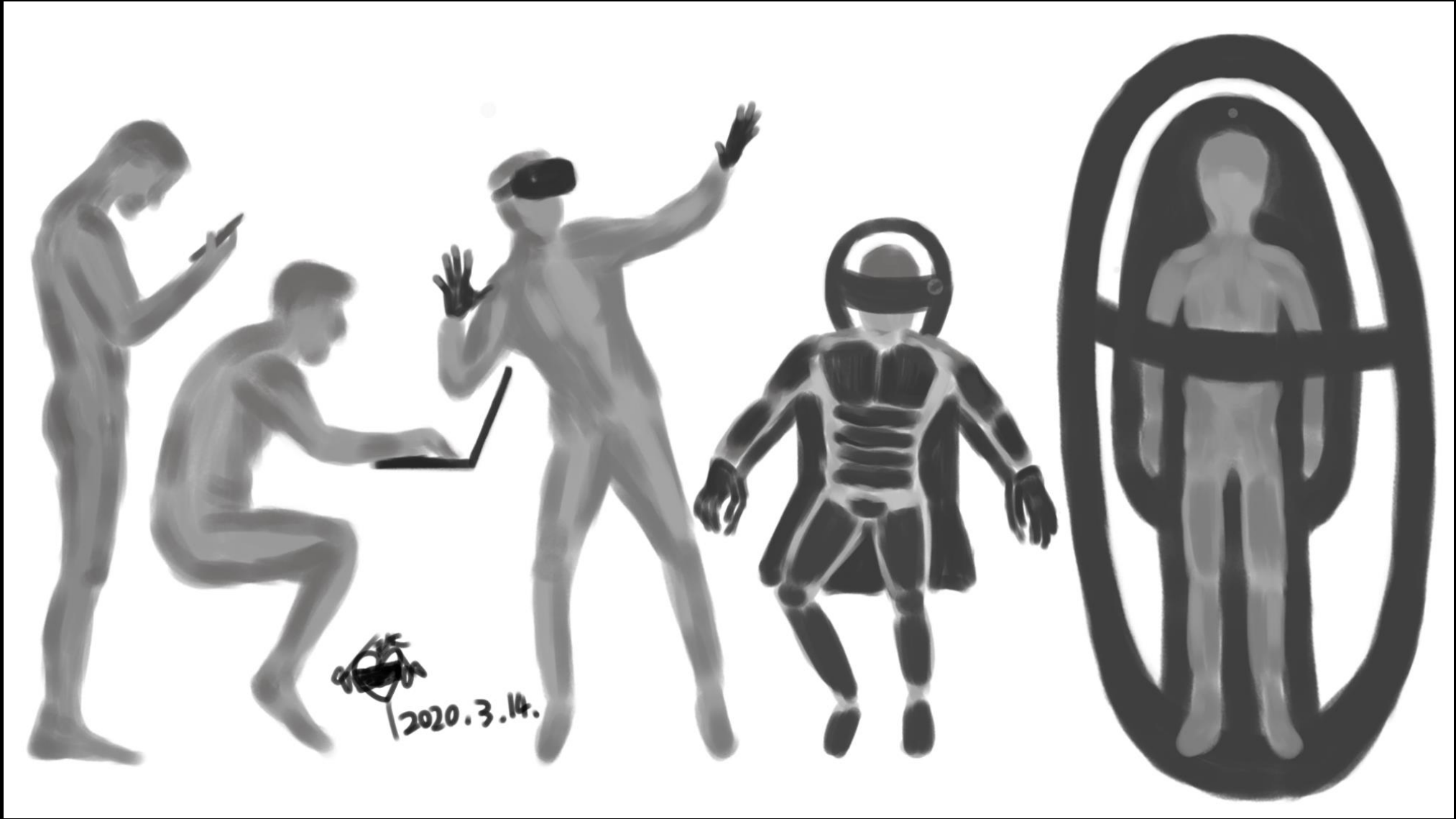
2019.12.1.

We claim to be changing the world.

But how much of the society have we
accepted, adapted and accommodated as is
along the way?



2015.12.22.





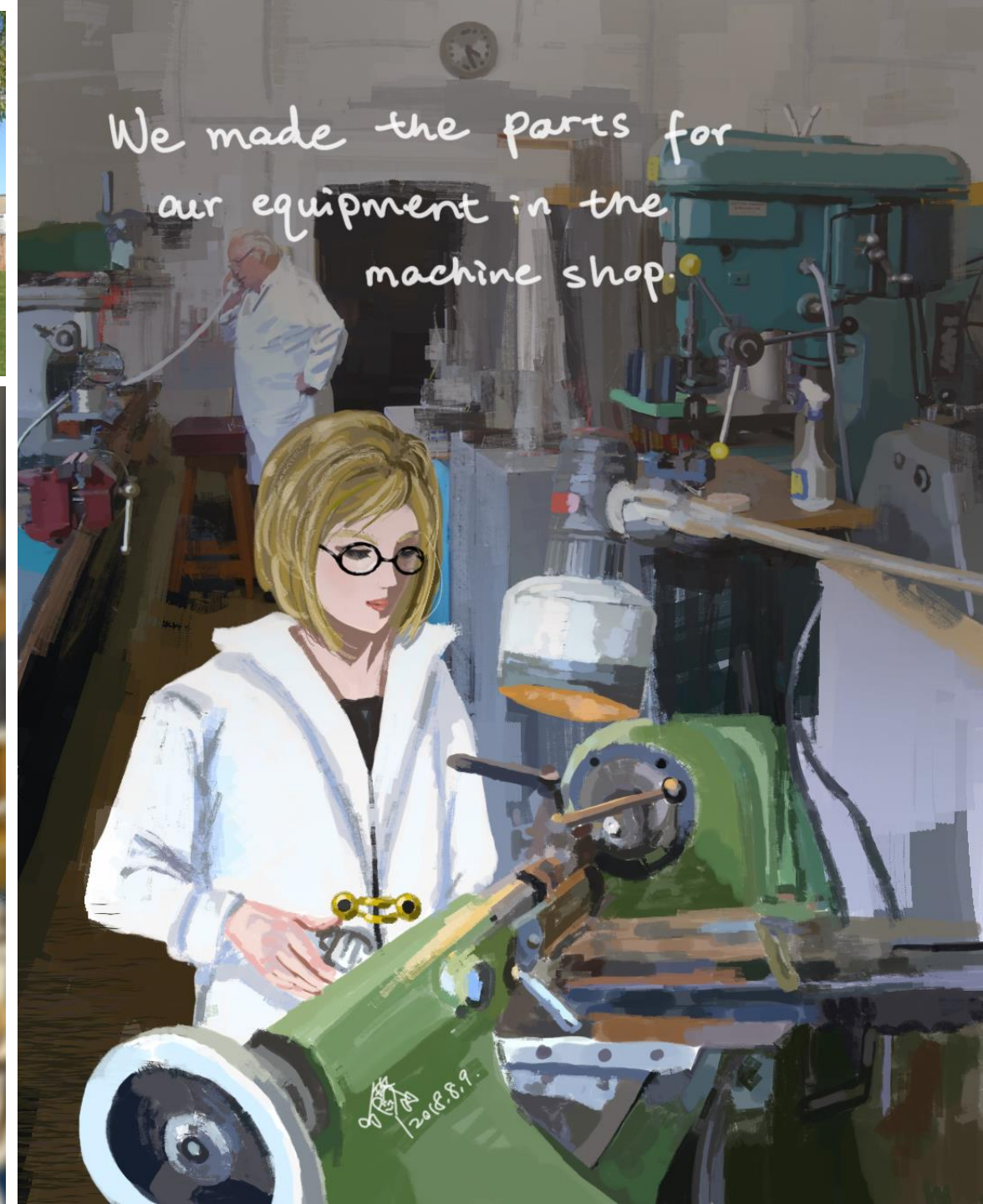
Together, we created a world

in which no one knows

how we came to be.

AN. S. DA

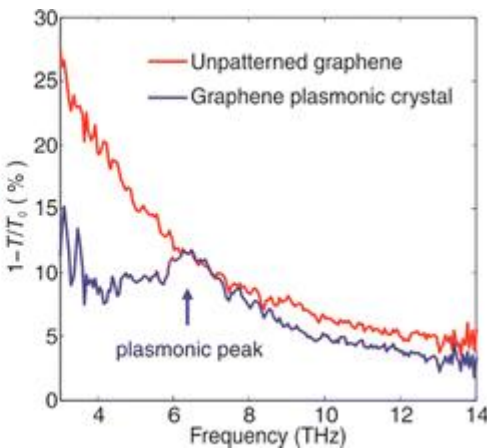
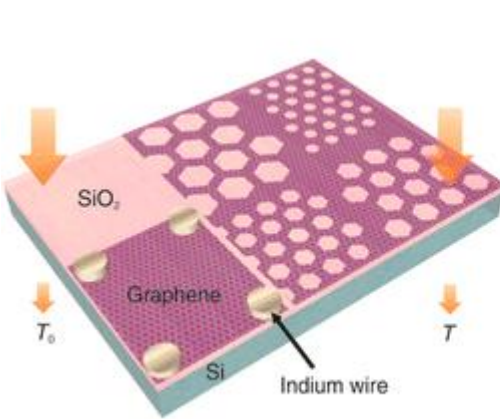
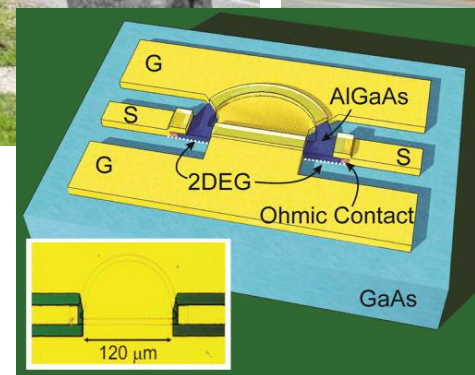
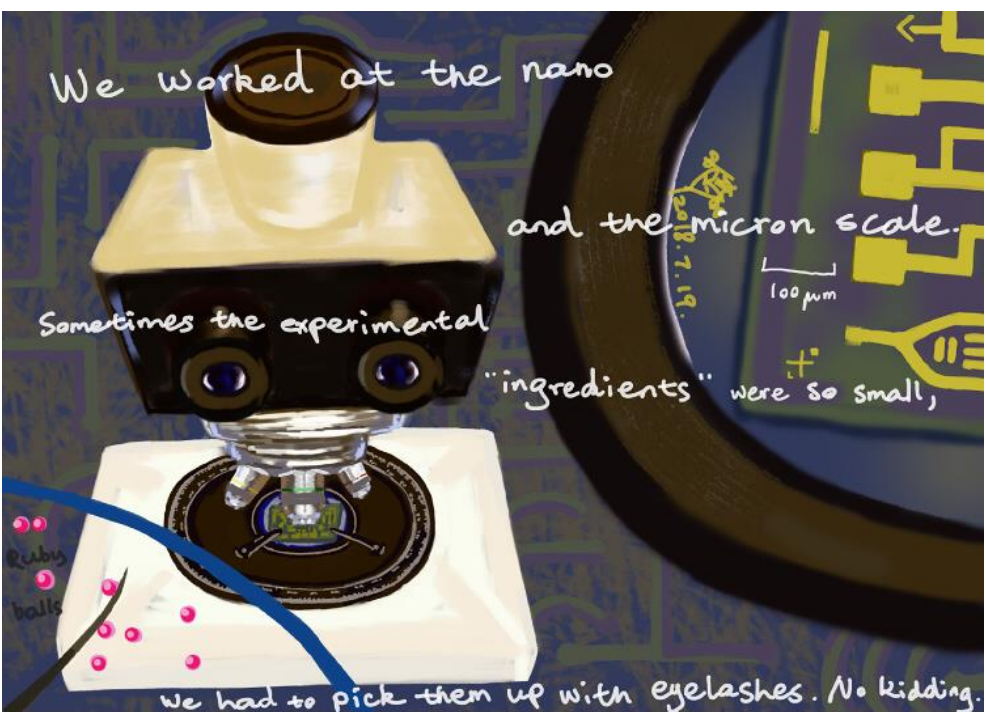
2022. 9.25.

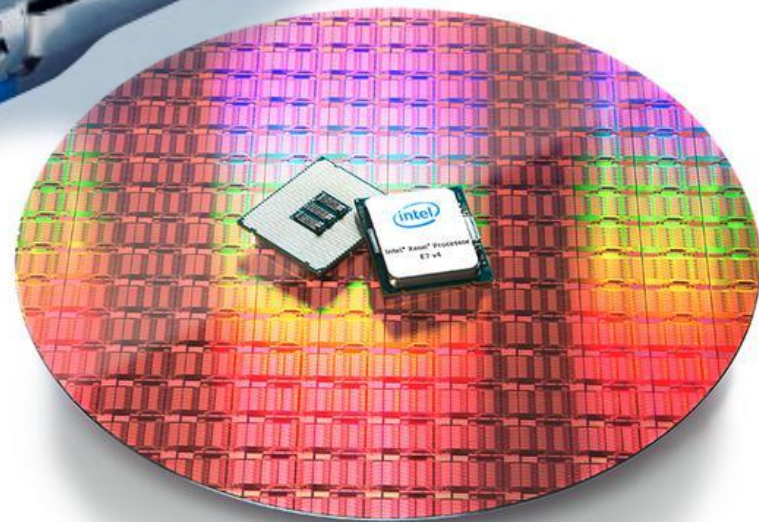
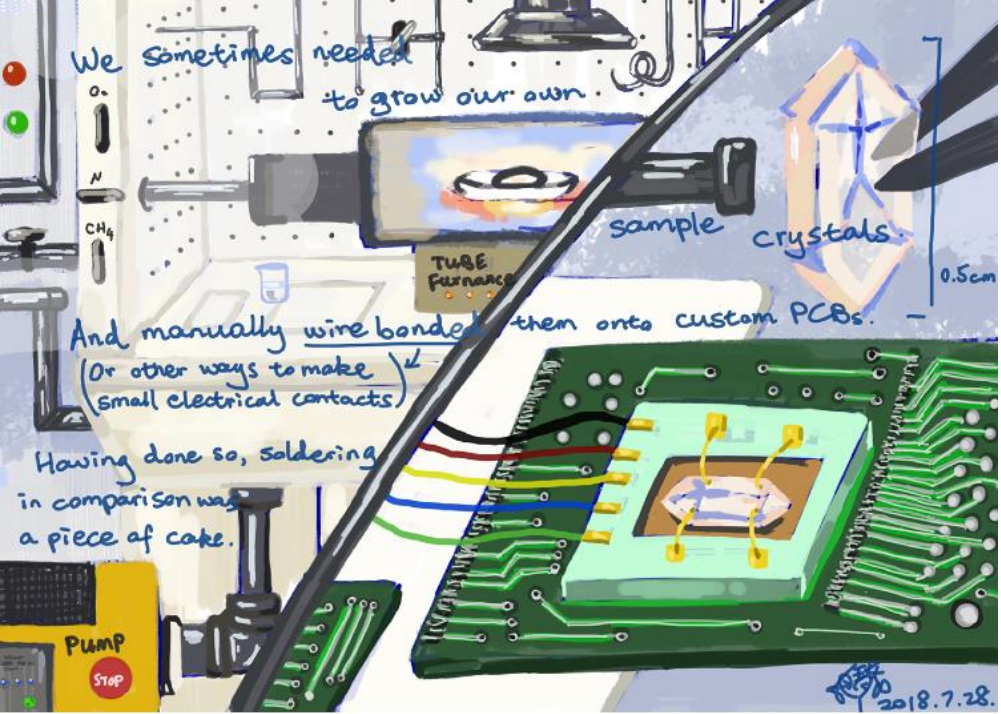


We made the parts for
our equipment in the
machine shop.

In my early career doing condensed matter experiments,
in order to study the quantum properties
of materials, we had to cool things down
to sub-Kelvin temperatures,
using
dilution refrigerators

and
liquid Helium.





Understanding quantum computing and Q#

October 8, 2019 | [Bay Area Staff](#)



Azure Quantum

Quantum development kit

Optimization

Quantum computing

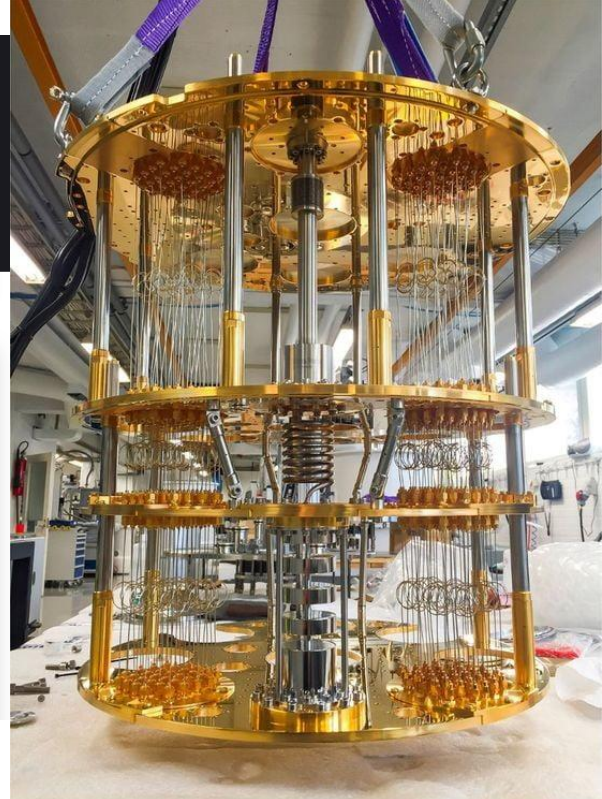
Azure Quantum

Optimization

Quantum Computing

Build quantum apps and run optimization solutions—backed by Azure scale and reliability—with Azure Quantum, an open cloud ecosystem built on a trusted cloud platform.

[Learn more about Azure Quantum >](#)



Quantum computing foundations

7 hr 20 min • Learning Path • 8 Modules

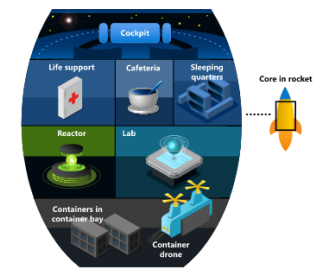
Beginner Intermediate Developer Quantum Development Kit Quantum

Welcome to the world of quantum computing!

Whether you're a developer or simply someone who wants to get a feel for what quantum computing is all about, this learning path is a great place to start exploring quantum computing and optimization.

Imagine you're the new member of a space crew. The spaceship is equipped with a computer that has access to the Azure Quantum servers on Earth and you can use the power of quantum to complete different tasks. During your training as a new crew member, you'll learn about quantum computing, optimization and how to use the Microsoft Azure Quantum service.

Welcome aboard!





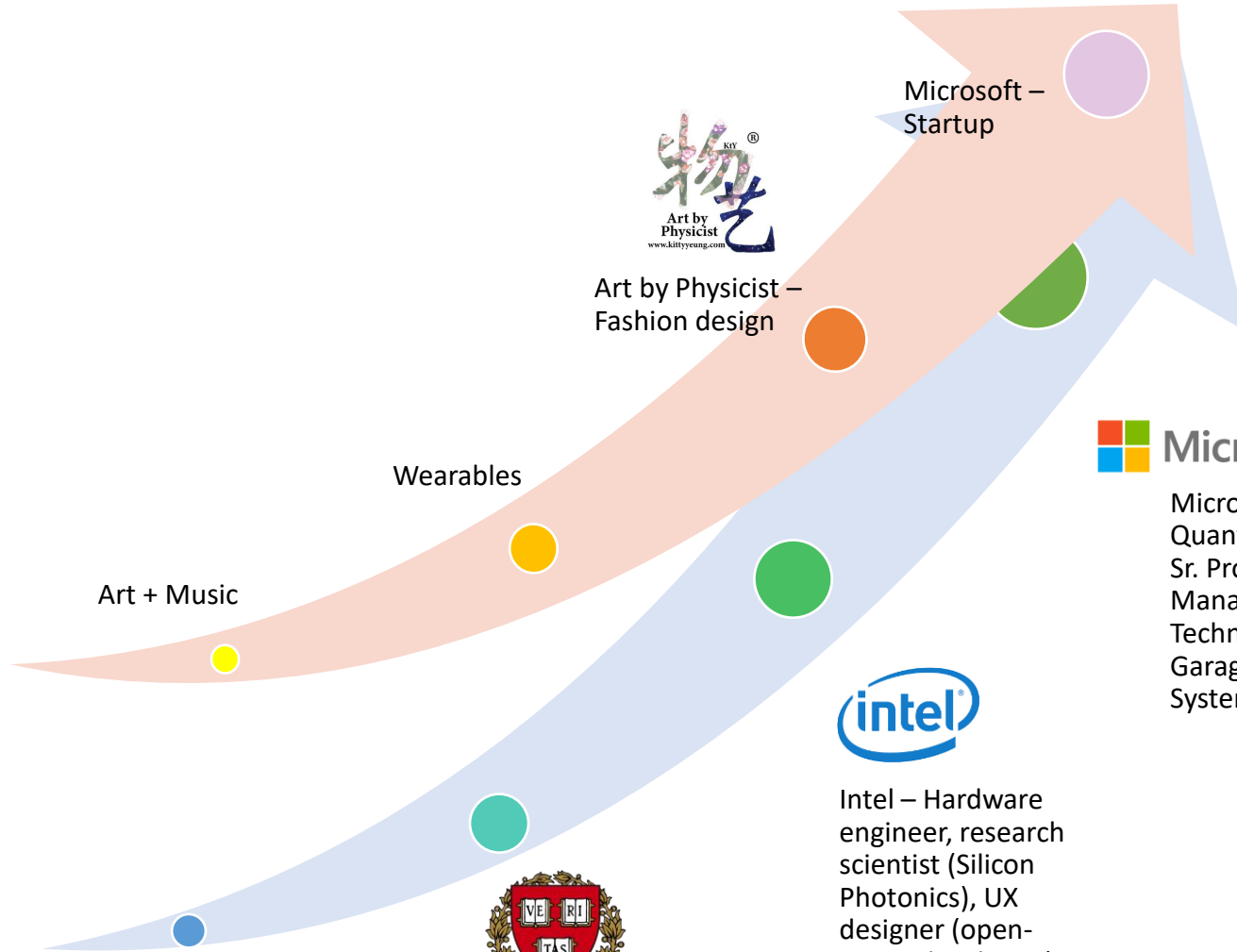
Physicists
are
the versatile kind.



Cambridge,
Cavendish – BA,
M.Sci. (condensed
matter
experimental
physics)



Harvard – PhD
Applied Physics
(plasmonic circuits)



Art + Music

Wearables

Art by Physicist –
Fashion design

Microsoft –
Startup



Intel – Hardware
engineer, research
scientist (Silicon
Photonics), UX
designer (open-
source hardware)



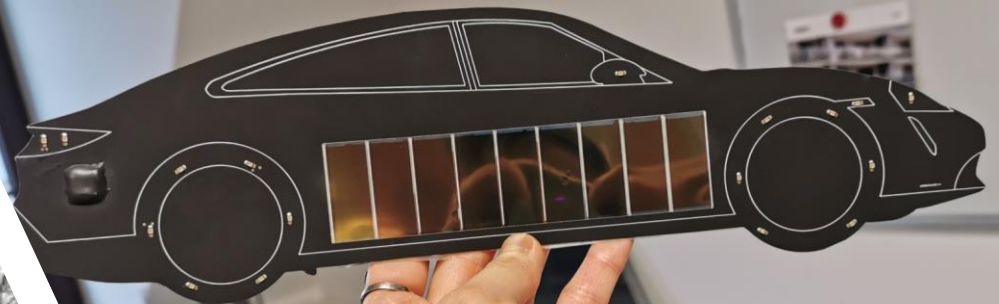
Microsoft

Microsoft – Sr.
Quantum Architect,
Sr. Program
Manager + Creative
Technologist (The
Garage -> Quantum
Systems)



Alternatively







KTY®
物艺
Art by
Physicist
www.kittyeyung.com

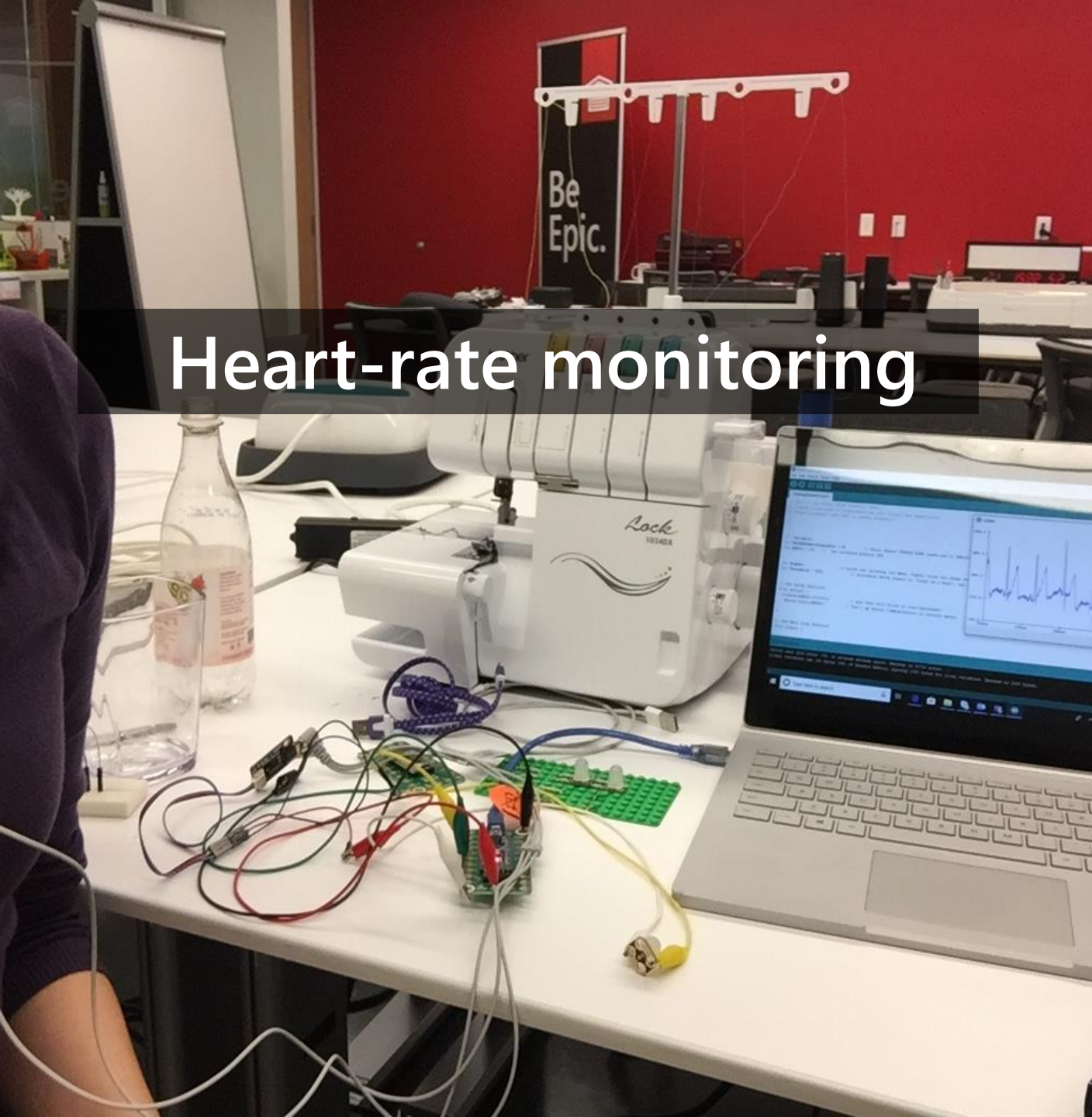


TREAT YOUR SOLAR PANELS

LIKE YOUR FAVORITE PLANTS

Art by Physicist x ARMOR ASCA
www.kittyeyung.com

Heart-rate monitoring



Machine learning





TUTORIAL
Solar-Powered Tech Fashion - SolarCycle & Microsoft Garage
Kitty Yeung



TUTORIAL
Laser, Robe, Star Wars?! - Versalume + Adafruit Gemma
Kitty Yeung



TUTORIAL
Mini Me 1.5 - Adafruit HUZZAH Robot Doll
Kitty Yeung



TUTORIAL
Twinkle Twinkle Nail Art and Bracelet - SparkFun LilyPad
Kitty Yeung



TUTORIAL
Arduino101 / tinyTILE BLE: Match-Making Sunglasses
Kitty Yeung



PROTIP
Adafruit - Rocket GPS
Kitty Yeung

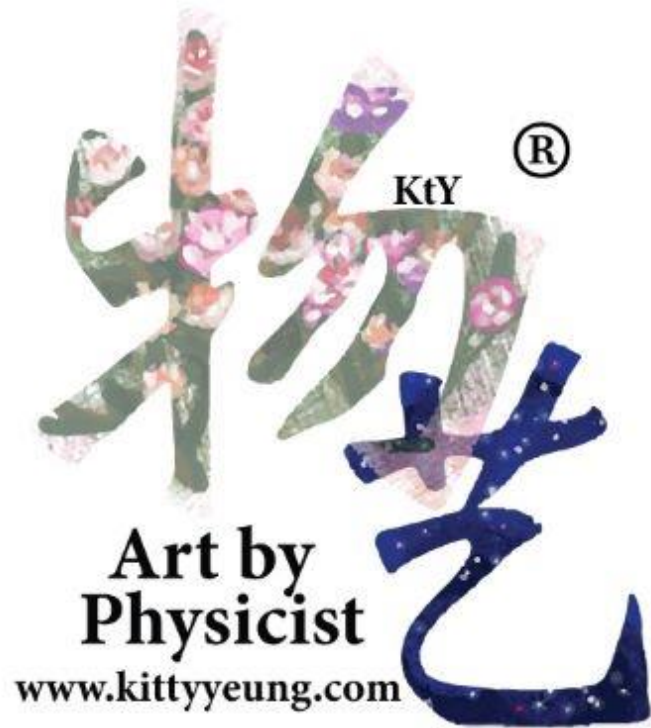


TUTORIAL
Intel Curie TinyTILE Dress: Accelerometer + Optical Fibers
Kitty Yeung



TUTORIAL
Arduino 101 - Intel Curie Pattern Matching Dress
Kitty Yeung

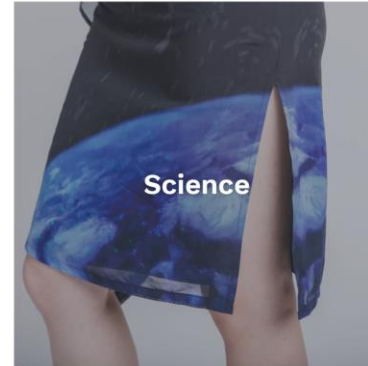
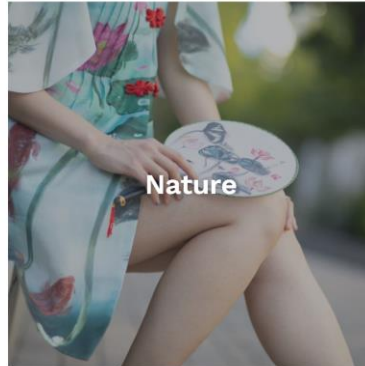
Open-Source <https://www.hackster.io/kitty-yeung>



Art by Physicist[®], Inc.
CALIFORNIA CORPORATION

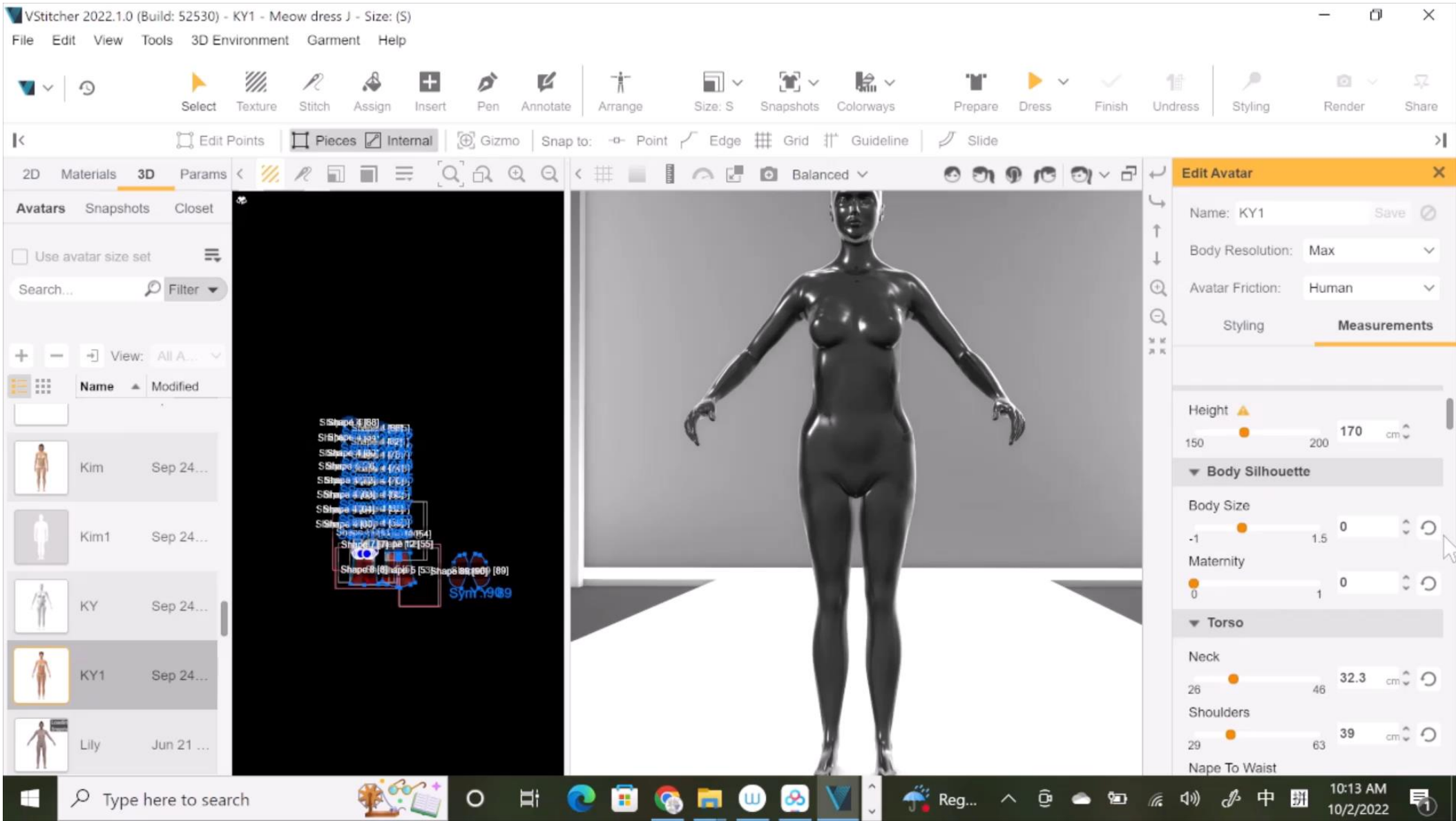


@artbyphysicist





Imagine yourself wearing a solar-powered overcoat or dress



量子KITTY

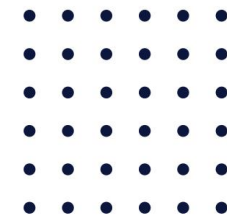
This is a collaboration between NovaCentrix
这个是NovaCentrix公司跟我的科技时尚品牌



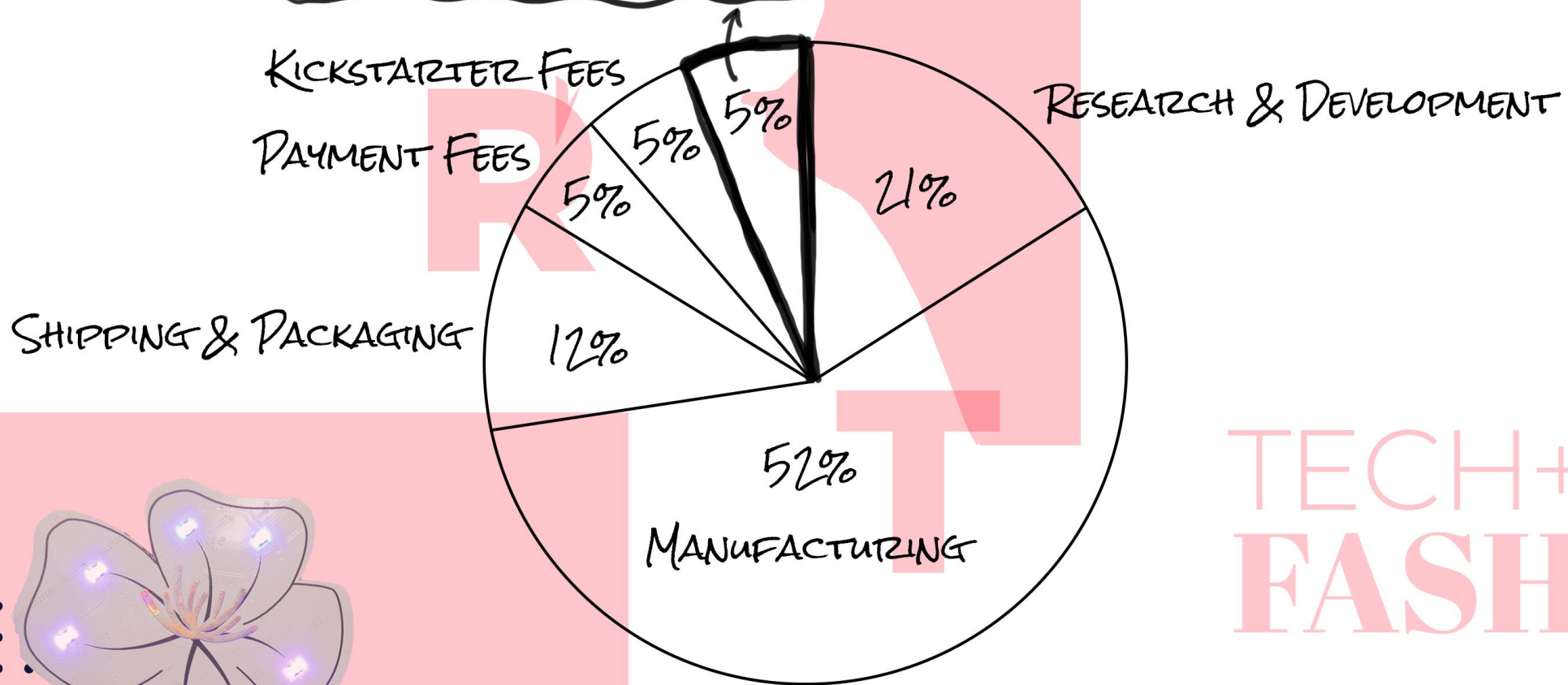
Heated
reversible
coat







DONATIONS TO STEAM & ENVIRONMENTAL PROTECTION



TECH+
FASHION



The conflicting nature of productivity



1 GARBAGE TRUCK
of clothes are burned
or landfilled every **SECOND**



Enough to fill
**1.5 EMPIRE STATE
BUILDINGS** every **DAY**



Enough to fill
SYDNEY HARBOR
every **YEAR**



2,625 kilograms
of clothing



Source: Ellen MacArthur Foundation

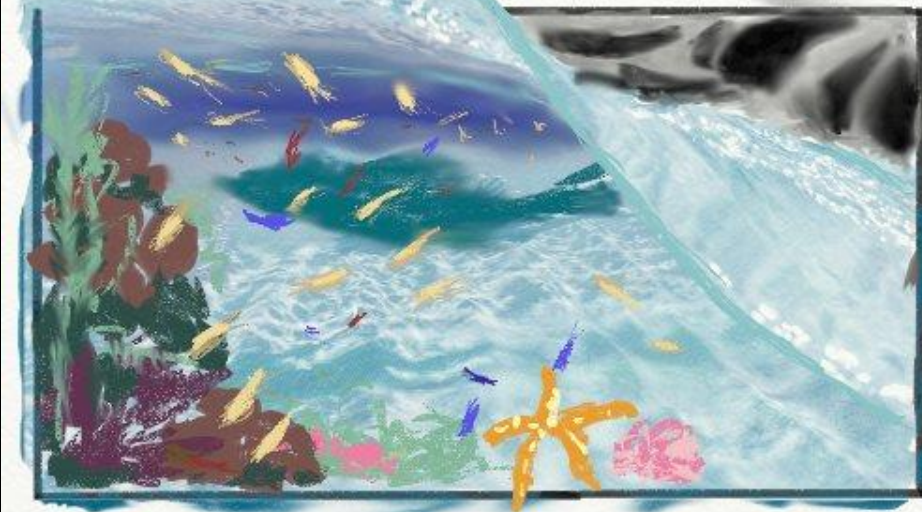


82,782,000 kilograms





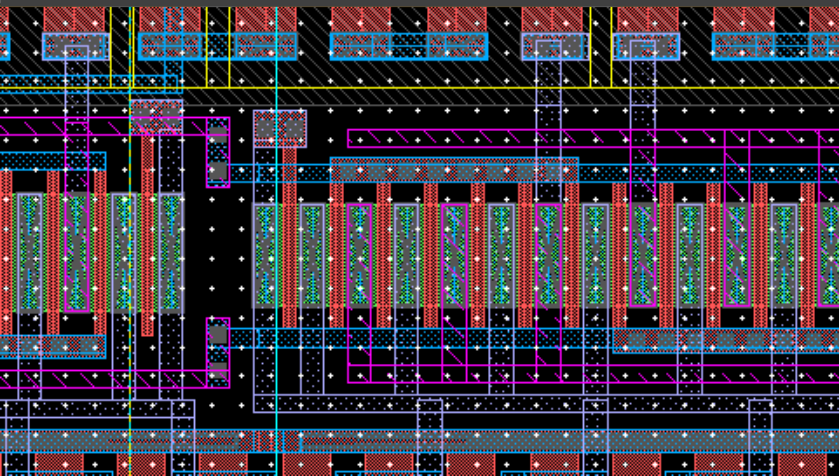
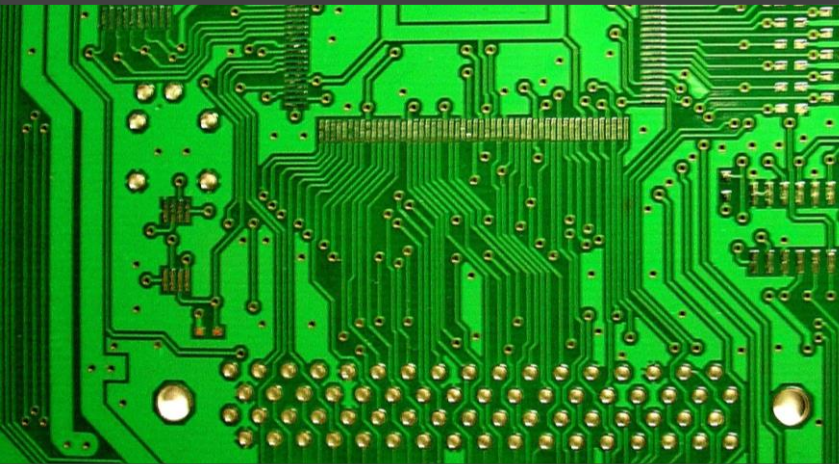
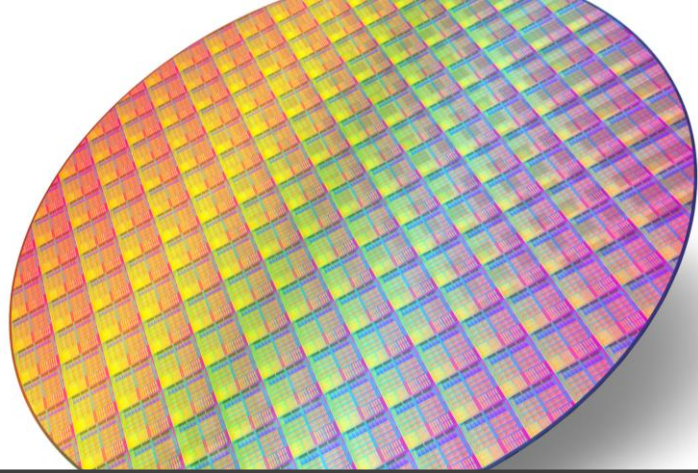
This Beautiful World



This Embarrassing
Earth

8/11/14
2014.8.1

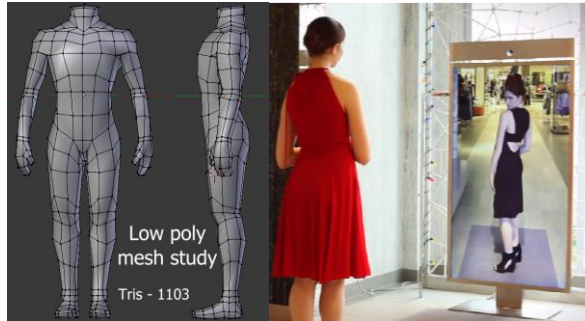




Why can't garment manufacturing be digitized like electronics manufacturing?

One of my projects at Microsoft

A complete ecosystem

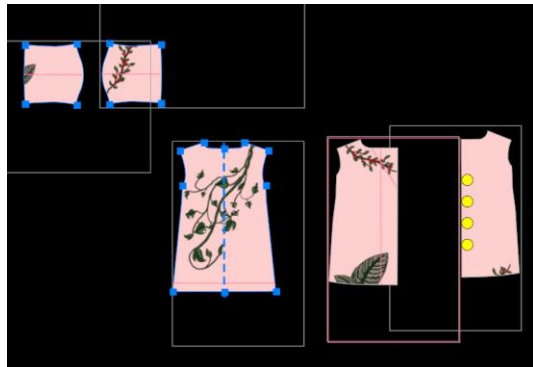


Matching street clothing photos in online Shops



Customization; Personalization
(AI: ML, CV)
Designer & Consumer Input

Automation; Democratization
(AI & IoT: robotics + cloud)
Local & Service



Modularization; Service platform
(AI + digitization + cloud)
Fit & Look

Can we make this industry open source?

Standbelegung
Exhibition halls overview


heimtextil

- 3.0** Smart Bedding
- Bed & Bath Fashion (Brands)
- 3.1** Bed & Bath Fashion (Private Label)
- Beautiful Living (Brands & Private Label)
- Textile Design
- 4.0** Window & Interior Decoration
- Textile Technology
- Wall Decoration
- 4.1** Decorative & Furniture Fabrics
- 6.0** Asian Excellence Asian Selection
- 6.1** Asian Excellence
- 6.1, 6.2** Asian Selection

Special Areas & Events

- 3.0** Heimtextil Conference: Sleep & More - 3.0 D41
Green Village - 3.0 D51
- 4.0** Heimtextil Trends 22/23
4.0 C10
Lecture Area
4.0 Saal Europa, FOY 01

The Heimtextil App: easy download



21. – 24. 6. 2022

Opening times
21. – 23. 6. 2022 9:00 a.m. – 6:00 p.m.
24. 6. 2022 9:00 a.m. – 5:00 p.m.



Production quantity



Industry today:
not sustainable

Circular economy:
(recycling, upcycling, downcycling)
not realistic by itself

On-demand mass customization:
need automated factories,
digital processes,
connected supply chains

Hybrid end result

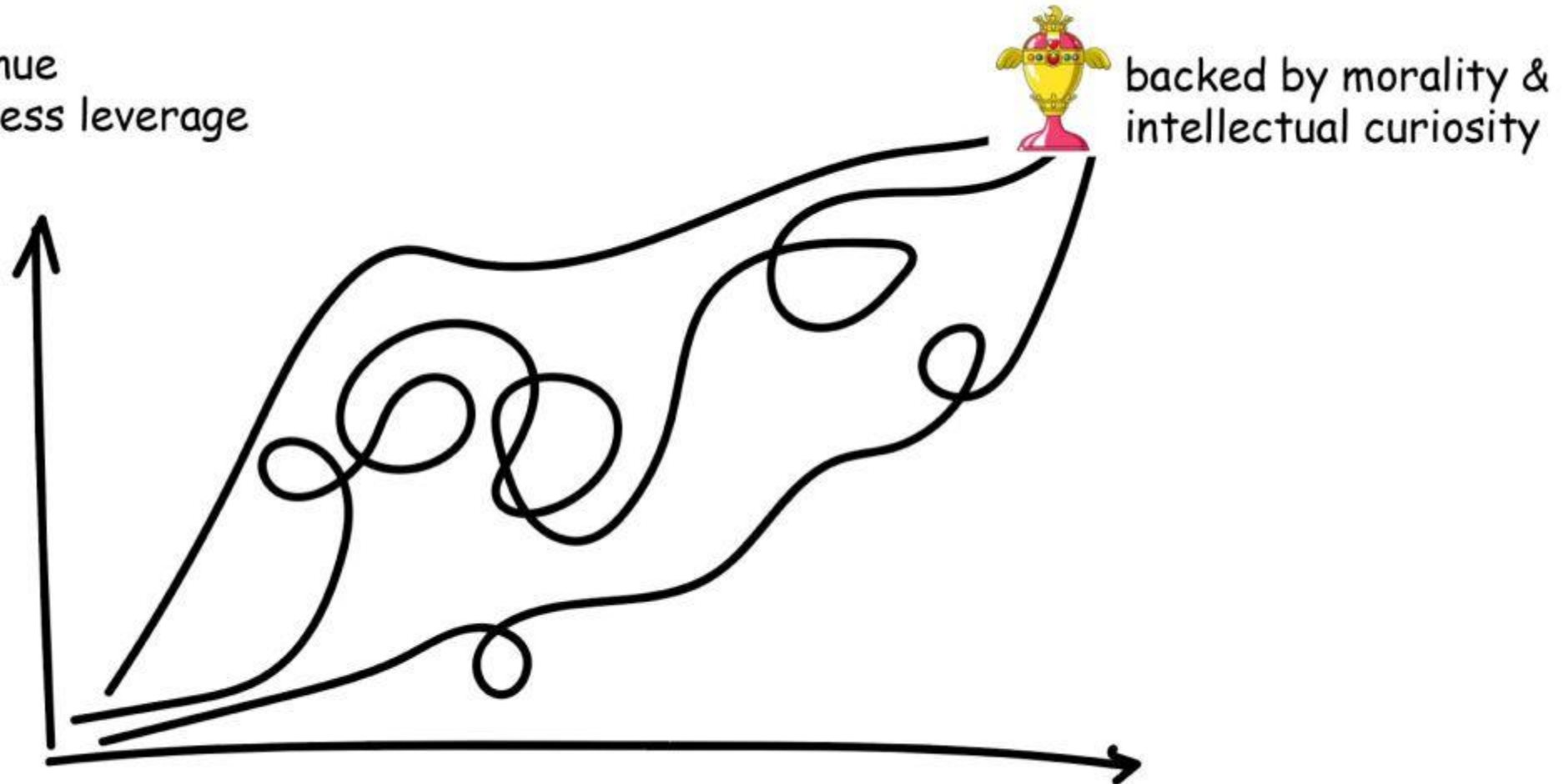
1

inventory = 0, MOQ = 1, SKU = infinity

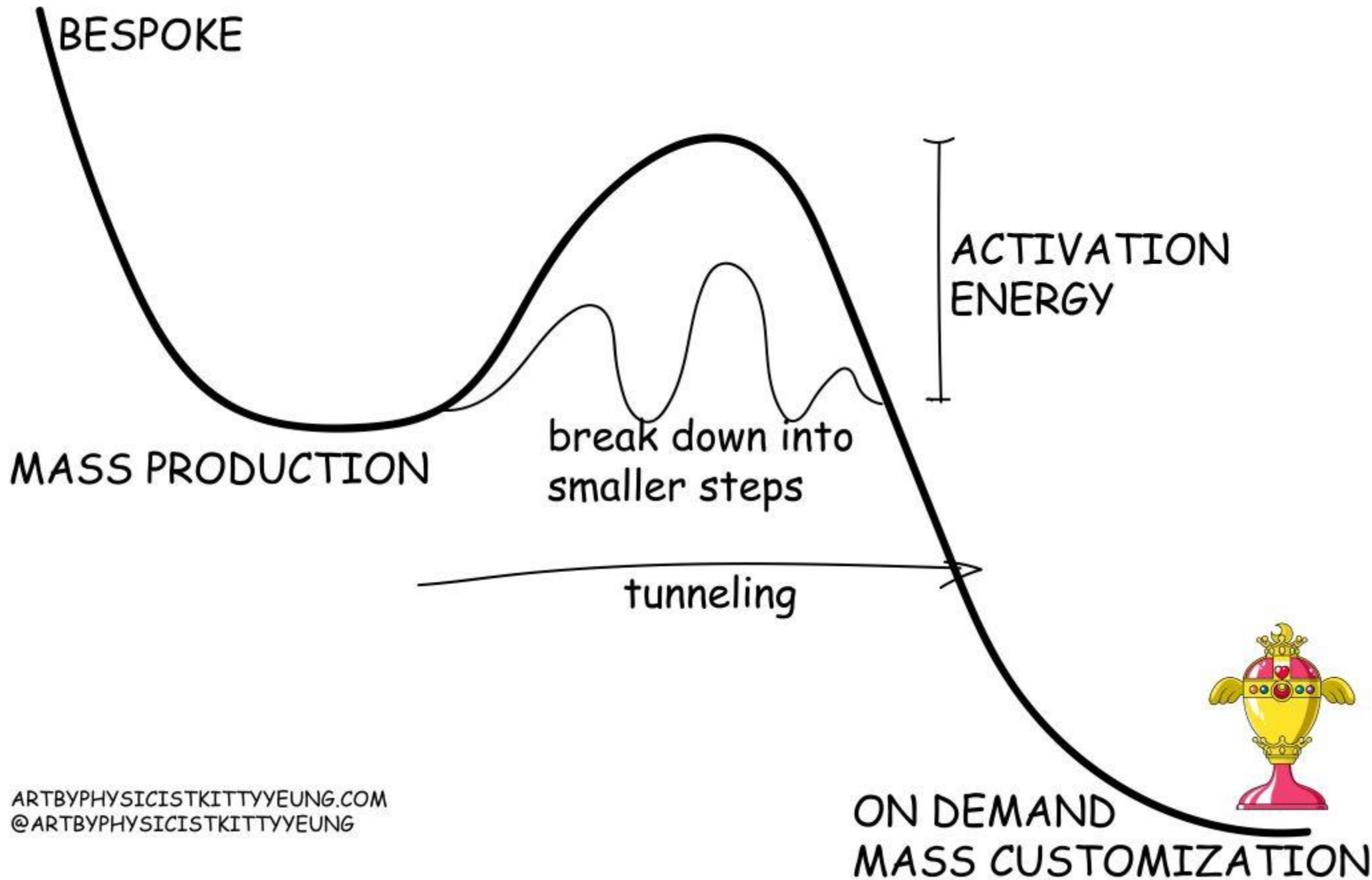


Era

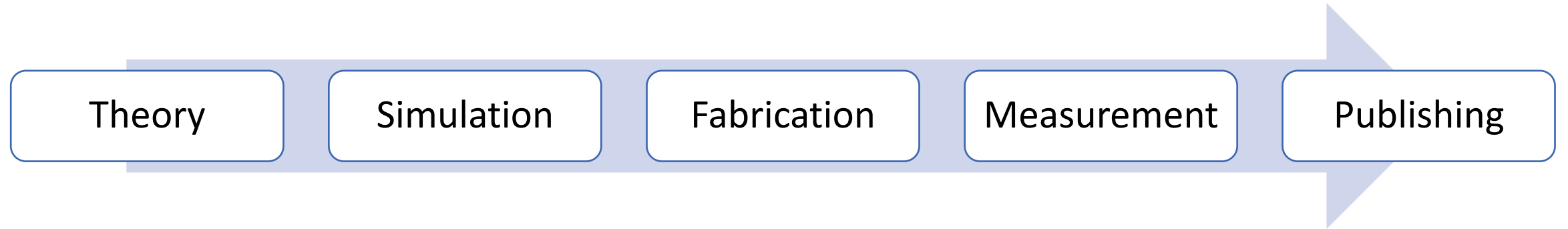
Revenue
Business leverage



backed by morality &
intellectual curiosity



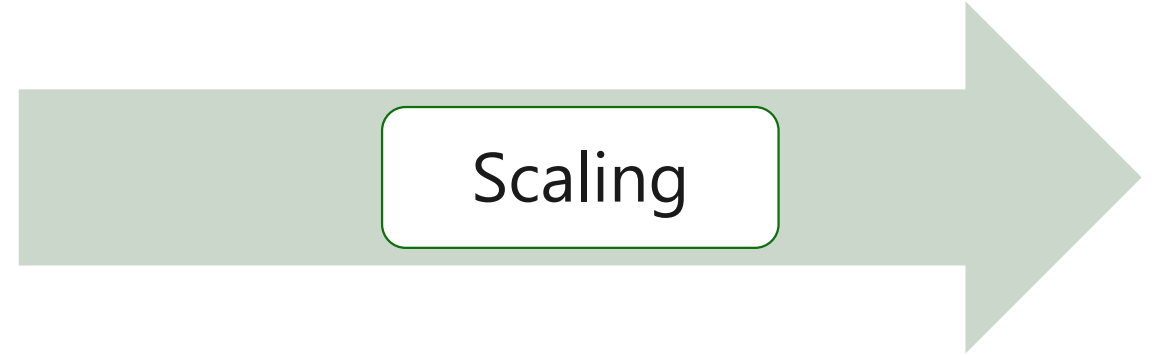
What I learned from **academia**



Research

Prototype

Production

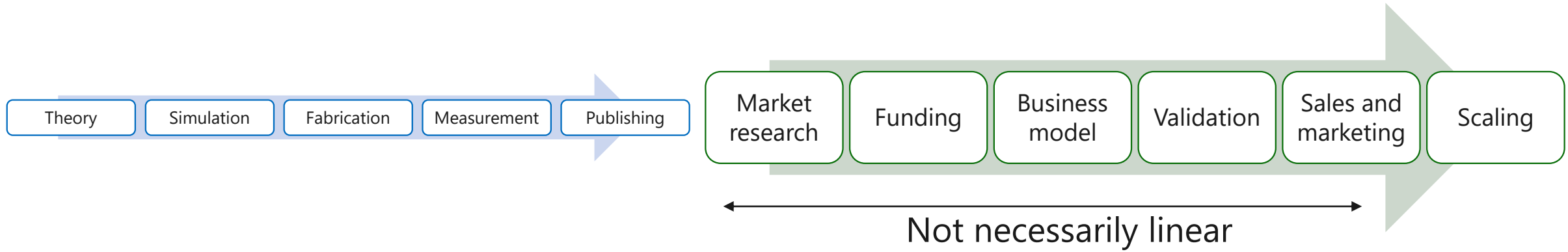


What I learned from **industry**

Research

Prototype

Production



The fun side?
The easy side?

The annoying side?
The hard side?

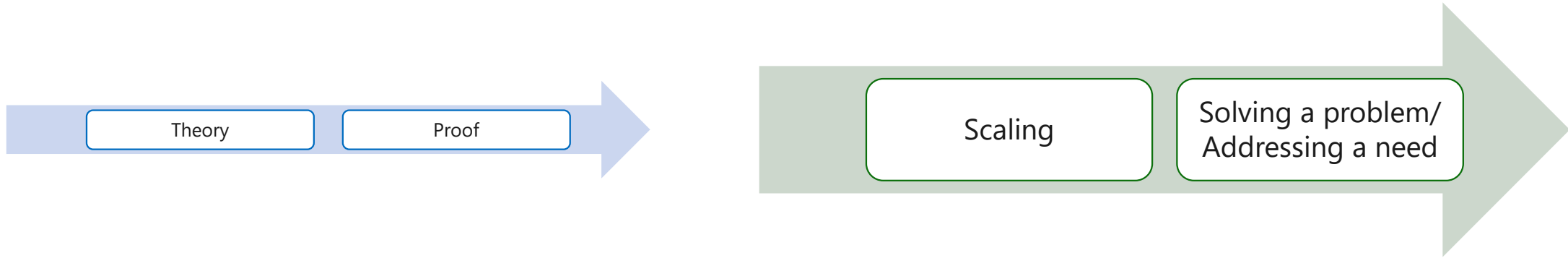
What I learned from **academia**

What I learned from **industry**

Research

Prototype

Production




Theory

Proof

Scaling

Solving a problem/
Addressing a need

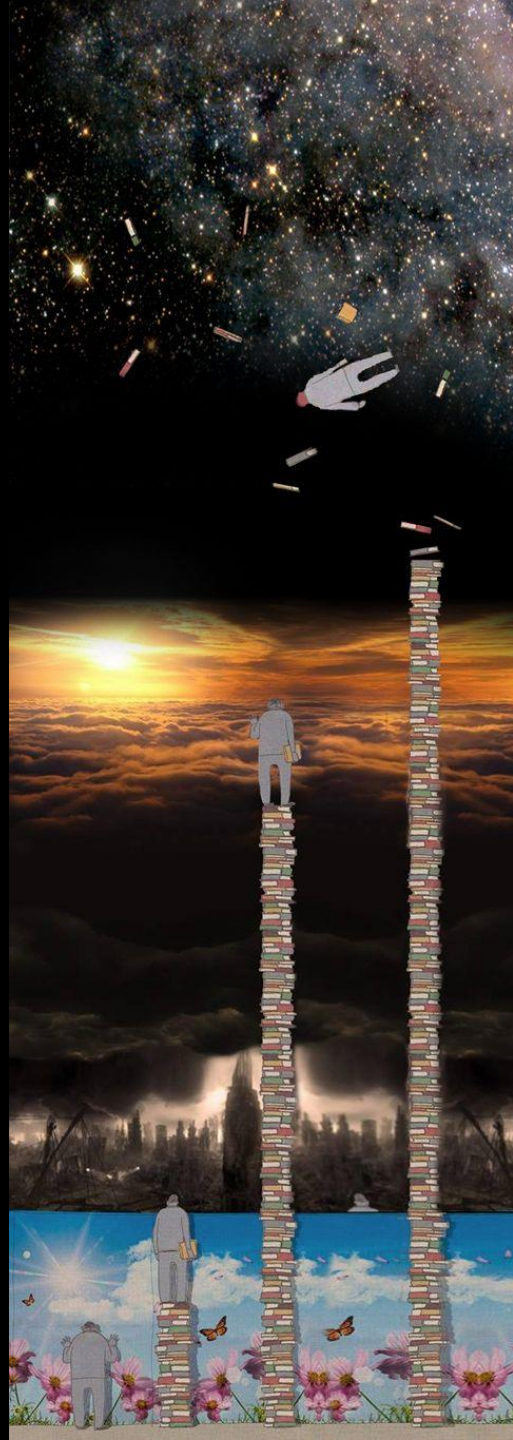
DISCOVERY

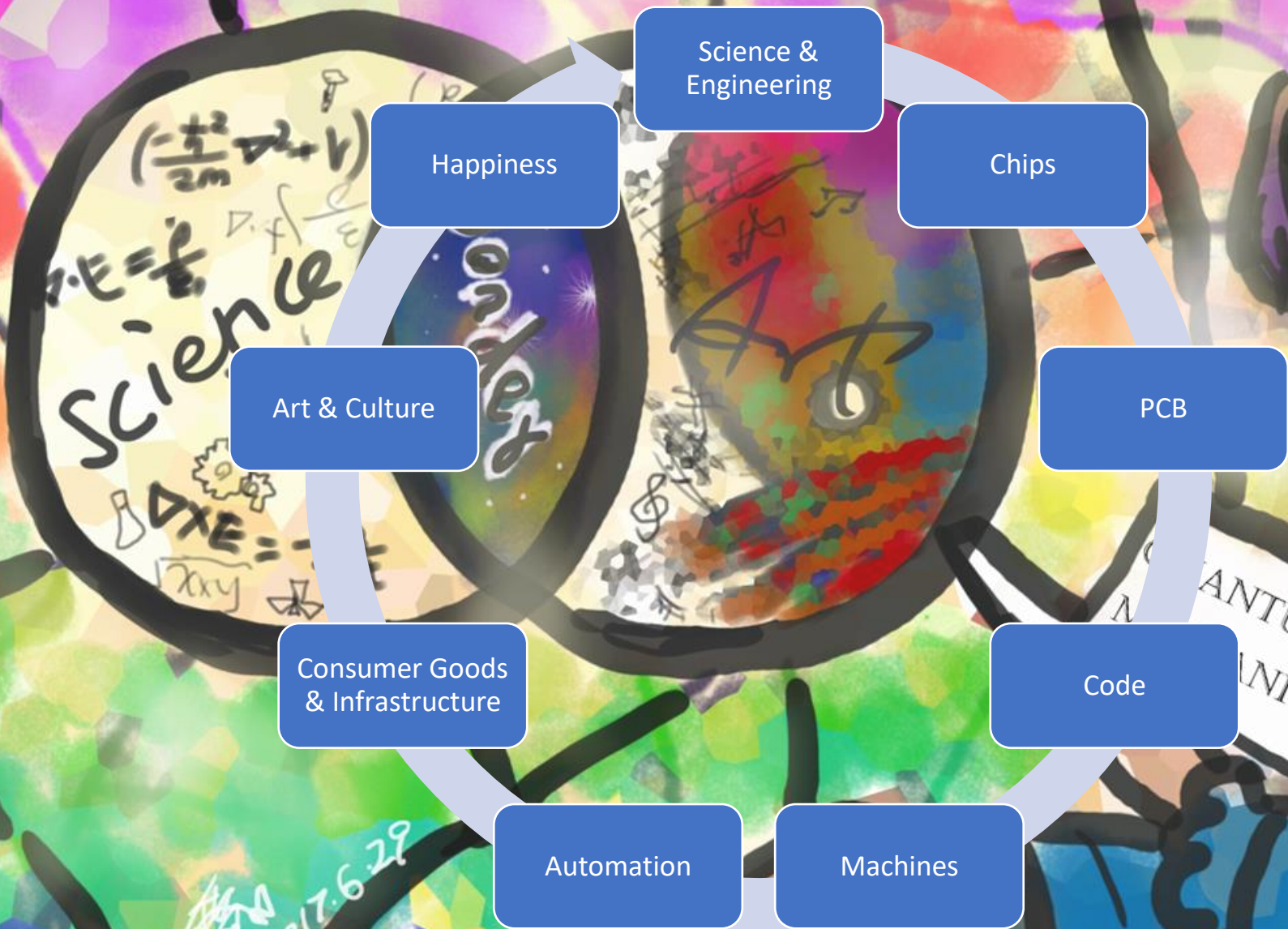


Through noise,
we finally
found you.

The one that
only wants to
bring positive
light to the world.

Entropy was
our enemy.





ANTUM
NICS

Intellect
Creativity
Productivity

2017.6.29

THE 17 GOALS

In 2015, world leaders agreed to 17 goals for a better world by 2030. These goals have the power to end poverty, fight inequality and stop climate change. Guided by the goals, it is now up to all of us, governments, businesses, civil society and the general public to work together to build a better future for everyone.

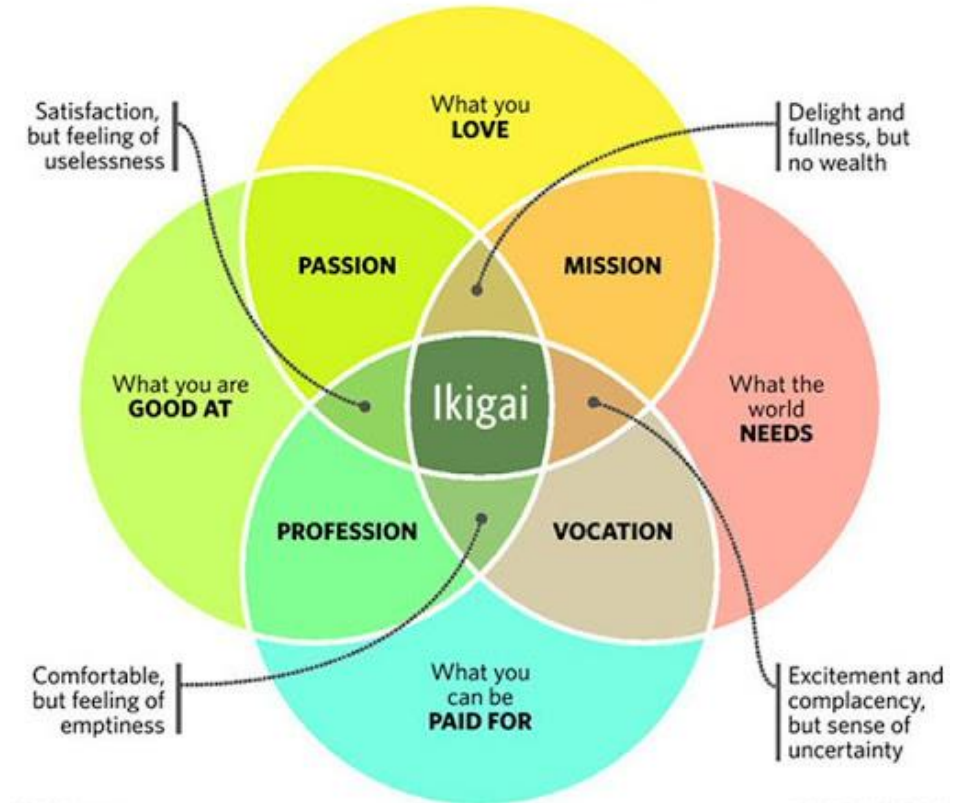
1 NO POVERTY 	2 ZERO HUNGER 	3 GOOD HEALTH AND WELL-BEING 	4 QUALITY EDUCATION 	5 GENDER EQUALITY 	6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY 	8 DECENT WORK AND ECONOMIC GROWTH 	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE 	10 REDUCED INEQUALITIES 		
11 SUSTAINABLE CITIES AND COMMUNITIES 		12 RESPONSIBLE CONSUMPTION AND PRODUCTION 	Reduce inequality within and among countries. VIEW GOAL		
Make cities and human settlements inclusive, safe, resilient and sustainable. VIEW GOAL		13 CLIMATE ACTION 	HOW CAN I CONTRIBUTE? The Global Goals will only be met if we work together. See how you can get involved here.		
		14 LIFE BELOW WATER 	GET INVOLVED		

The Bill & Melinda Gates Foundation
GOALKEEPERS 2019.
25-26TH OF SEPTEMBER.
WORLD LEADERS GATHER. [GO TO WEBSITE](#)

15 LIFE ON LAND 	16 PEACE, JUSTICE AND STRONG INSTITUTIONS 	17 PARTNERSHIPS FOR THE GOALS
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Ikigai

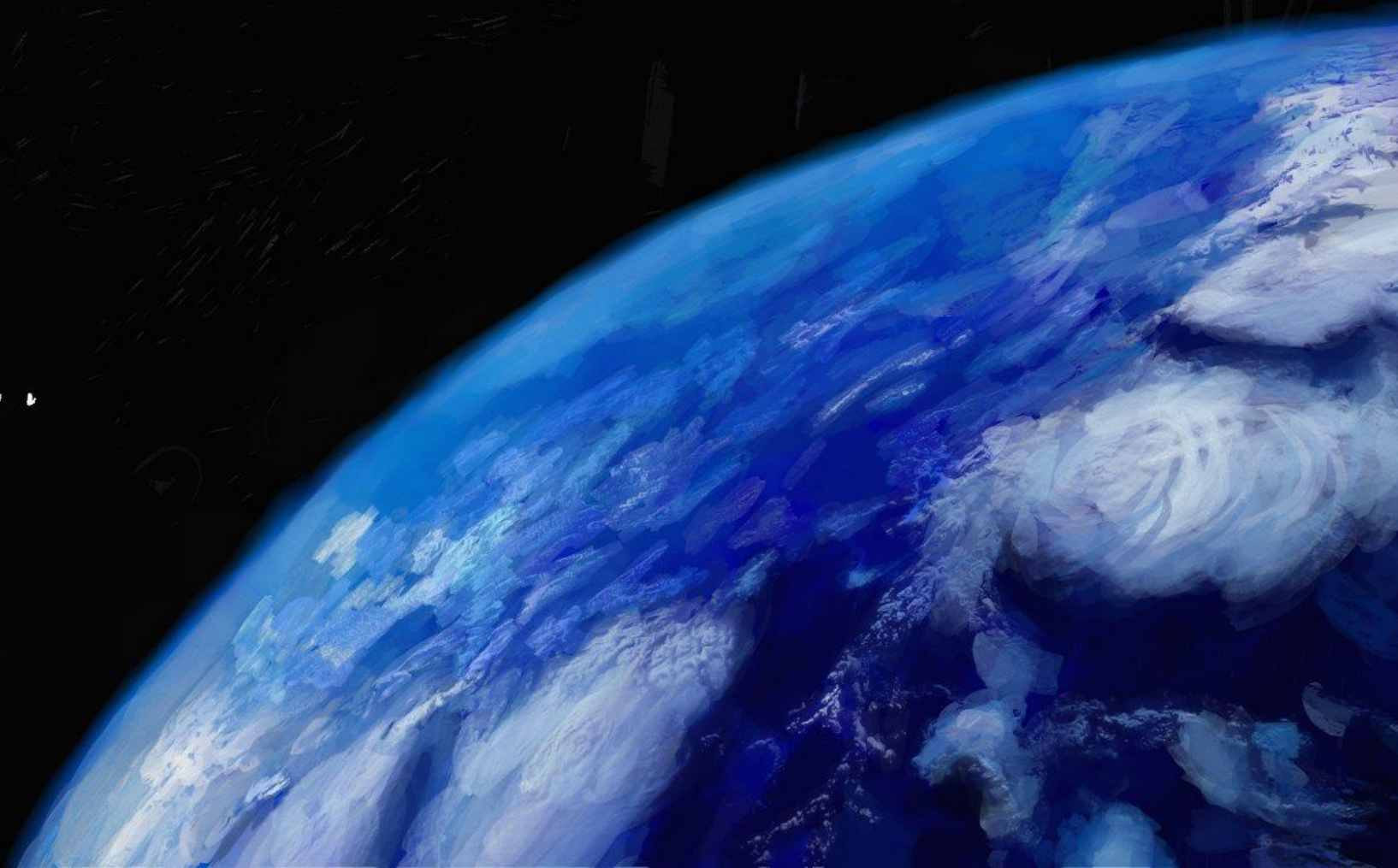
A JAPANESE CONCEPT MEANING "A REASON FOR BEING"



SOURCE: dreamstime

TORONTO STAR GRAPHIC

This world is
full of
beautiful
things...





Science + Engineering + Design + Art

Dr. Kitty Yeung

www.artbyphysicistkittyyeung.com



@artbyphysicist



Kitty Y. M. Yeung