

Building An AI Ready Generation

Intel® AI For Youth : Global AI Readiness Program.

African Brains Education Event – The Transformation of Education in Africa

Nuno J. Martins, Director for AI Digital Readiness Programs EMEA

Global Partnership and Initiatives / Government Markets & Trade

May 25th - 2021



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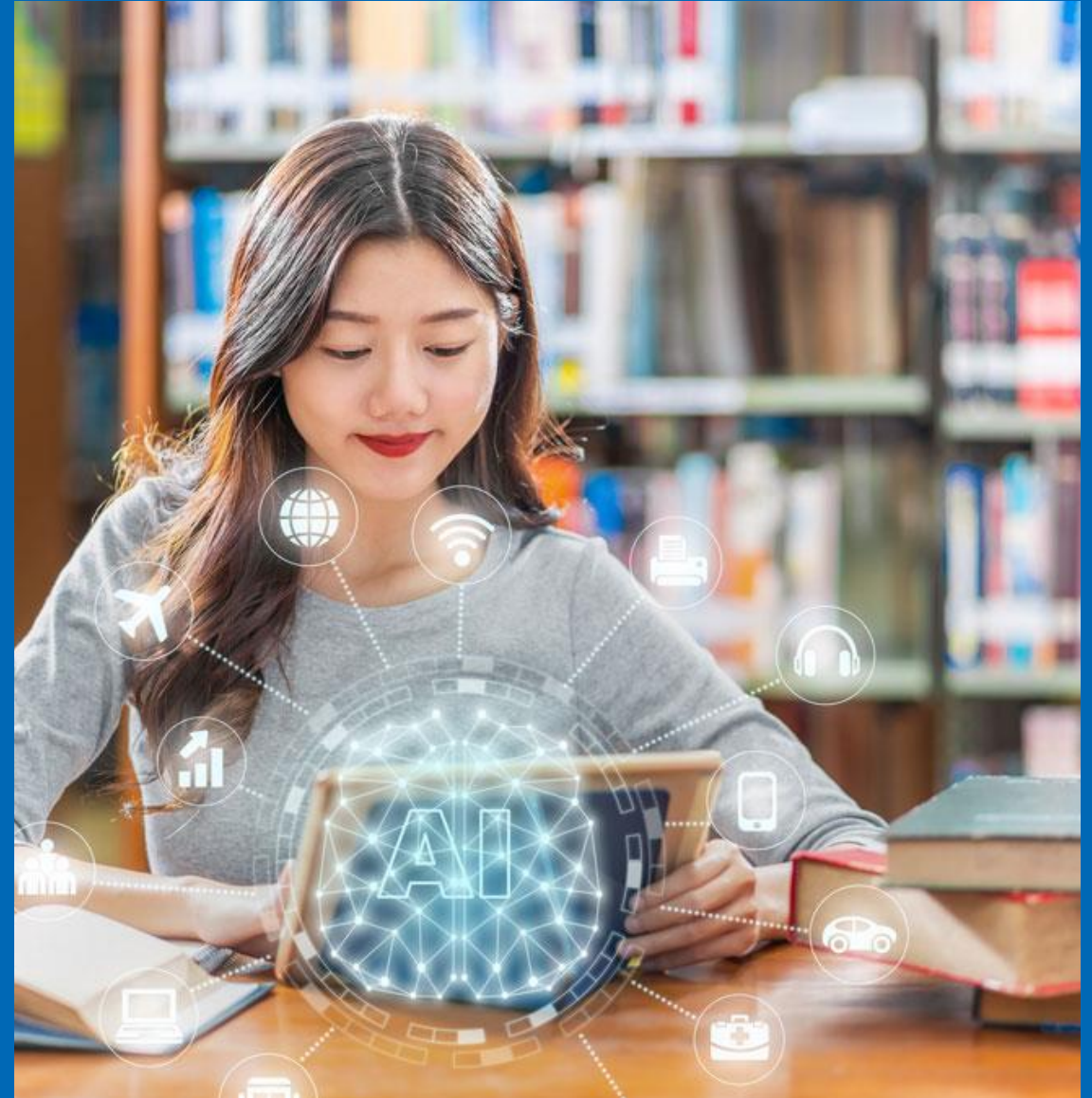
Topics Covered

- Intel Purpose
- Intel RISE Strategy
- AI and the Future of Work
- Intel Response
- AI for Youth Program Overview
- Student Outcomes
- Intel Differentiator



INTEL PURPOSE

To create world-changing technology that enriches the lives of every person on Earth.



Intel RISE Strategy

Making A Positive Impact On Society, Business, Planet

RESPONSIBLE

Revolutionize how technology will improve health and safety

INCLUSIVE

Make technology fully inclusive and expand digital readiness

SUSTAINABLE

Achieve carbon neutral computing to address climate change

ENABLING

Accelerate the ways we enable progress through our technology and the expertise and passion of our employees



Intel® AI For Youth

Empower Youth on AI Tech and Social Skills,
in an Inclusive Way.

30

Countries'
Government
Partnerships

30

Thousand
Institutions
with AI Access

30

Million People
Empowered With
AI Skills Training for
Current and Future Jobs

Bold 2030 commitment and call to action with
government partners worldwide

MAKING TECHNOLOGY FULLY INCLUSIVE
AND EXPANDING DIGITAL READINESS



Our Current Footprint



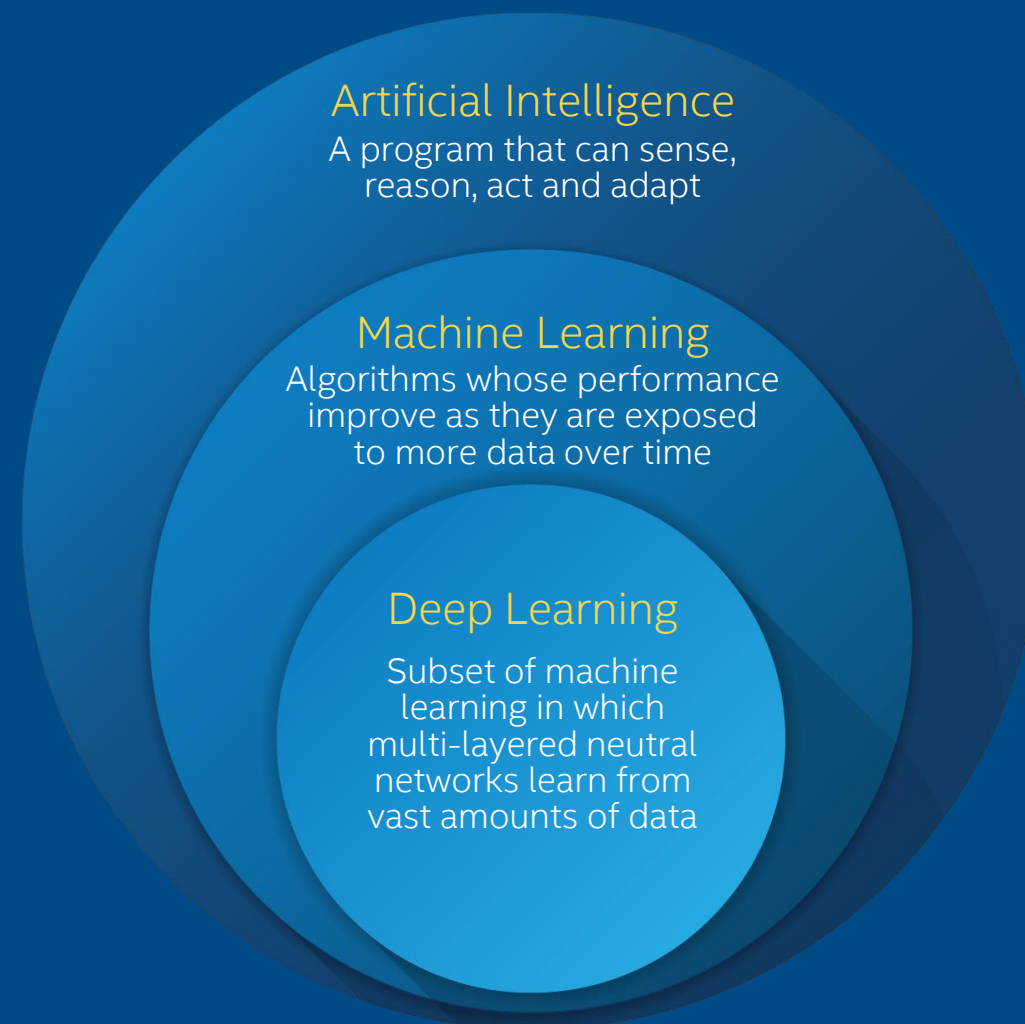
Countries

-  India
-  South Korea
-  Poland
-  Germany
-  Singapore
-  China
-  US
-  UK
-  Russia
-  Argentina

Building the Future with Artificial Intelligence (AI)

AI enables machines to learn from experience with data & perform cognitive functions associated with the human mind

Overarching Discipline	Big Spectrum	Moving Goal Post
A form of intelligence	Narrow AI: Focused on one specific task	Successful technologies gets mainstreamed as software
A type of technology	General AI: Intelligence that can handle any task in any domain	
A field of study		



Opportunities in the AI World

“AI has the potential to boost the rates of profitability by an average of **38%** by 2035 and lead to an economic boost of **USD 14 trillion** by 2035” - Accenture



Disruptions across industries
(including Government & Education segment)



\$65B Biz Opportunity by 2025 for tech sector
(Source : Intel – Tractica analysis)



Data is the new oil for AI:
“World’s data will grow 10X in 10 years, yet only 1% of all data is ever analyzed & used”
(Source : Seagate)

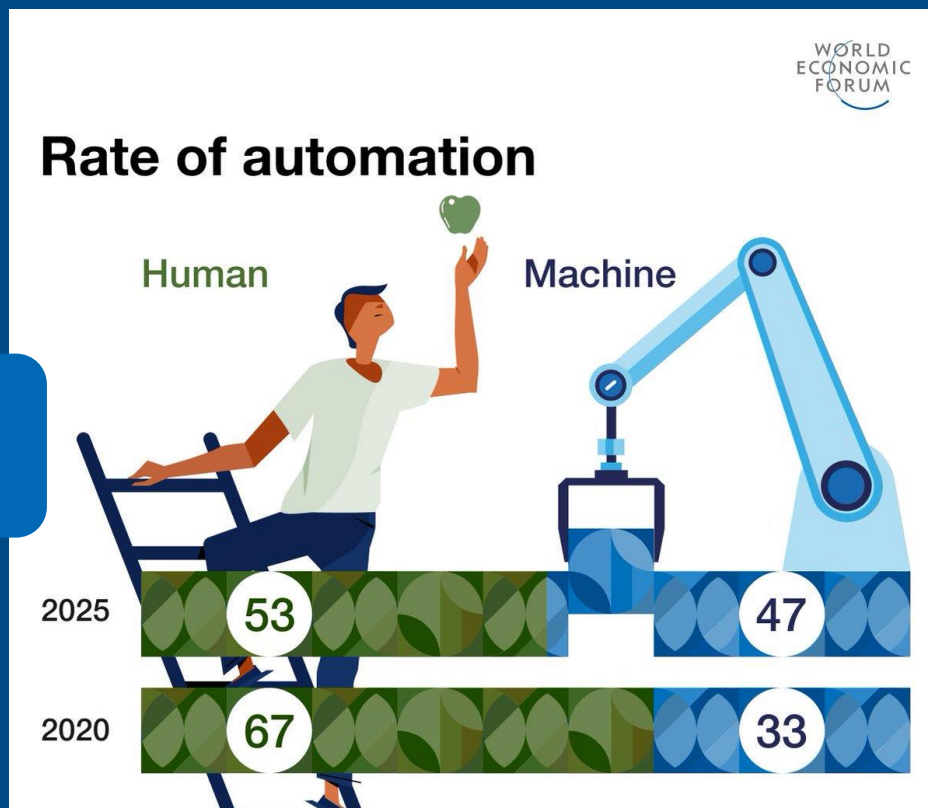


AI adoption is just beginning:
“Only 4% organisations have implemented AI while 46% have planned”
(Source : Gartner)

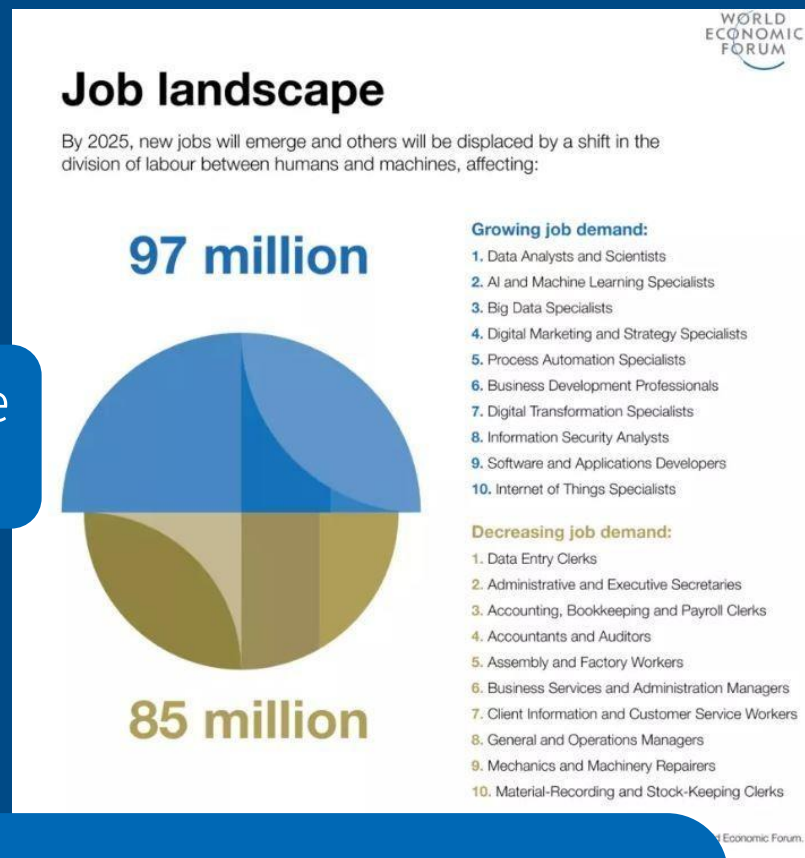
Reskilling and upskilling of the next generation, workforce & government leaders is a key government priority. Governments are creating national AI policies for the future of work – building readiness & market capacities.

Changing Future Of Work

Work Task
changes



Work Force
changes



Growing AI Skills Crisis; >35% demand supply gap

New skills demands new responsible workforce readiness

Digital Readiness for Africa

What will AI mean for Africa



Health

AI offers vast opportunities to transform how we understand disease and improve health.



Transportation

AI can provide safe and efficient transportation; expand the capacity of existing road infrastructure and improve traffic flow. It can also reduce carbon emissions and facilitate greater inclusiveness.



Education

AI can develop predictive models for engagement and comprehension. It can be used to develop new approaches to education that may revolutionise how people learn.



Public services

AI can improve how governments interact with their citizens and deliver services. It can create efficiencies, reduce burdens, and eliminate redundancies.



Food production

AI offers significant opportunities to increase food production by improving agricultural yield and reducing waste.

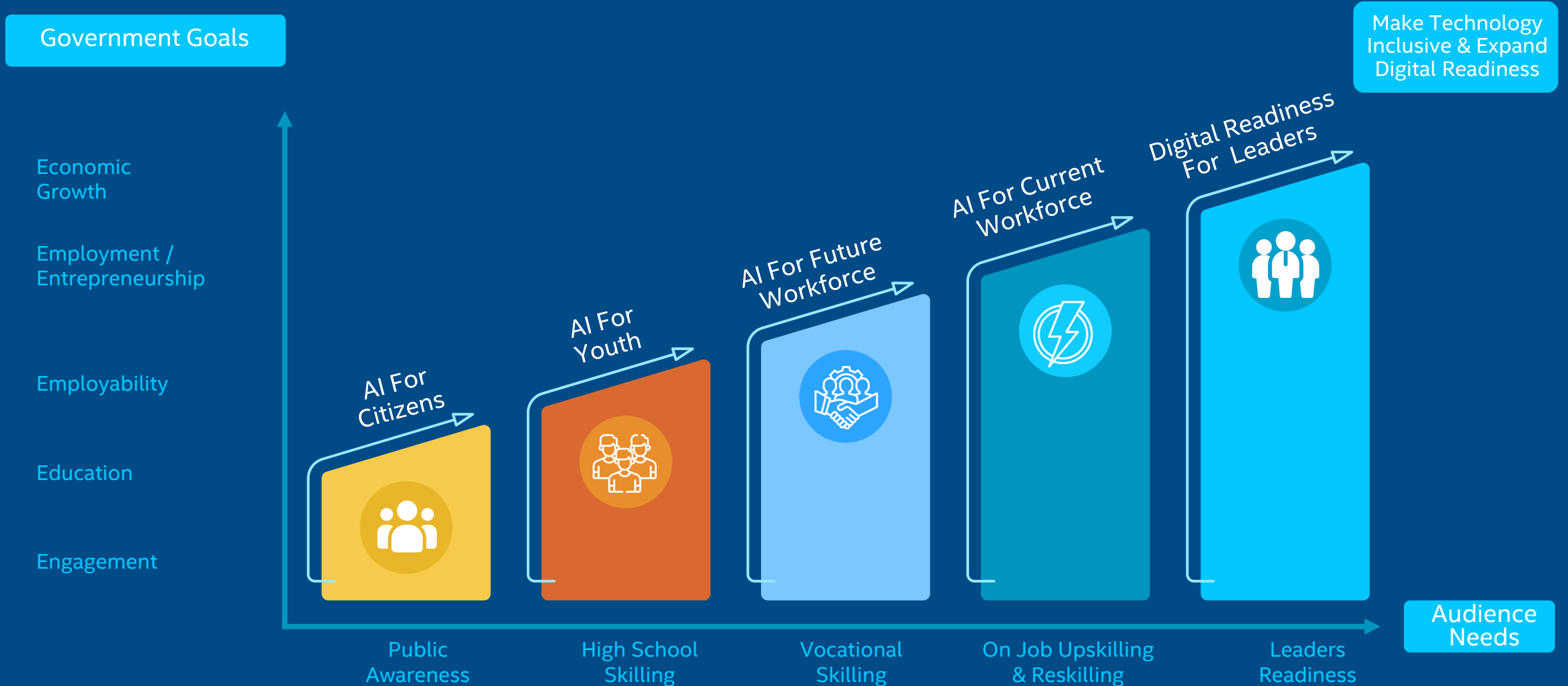


Disabilities

AI can help address some of the problems faced by the more than 80 million people in Africa.

Intel Response :

Digital Readiness Partnership Programs Portfolio



Intel® AI For Youth Program

Target Audience : High school students in K12 Schools / After Schools

Age : 13-19. Pre requisite: No coding experience required. Only foundational math & statistics skills.

Objective

Empower youth
with AI tech and
social skills in an
inclusive way



Deep understanding of AI

- Demystify AI for youth and equip them with the skillset and mindset required for AI readiness.



Access and use of AI toolsets

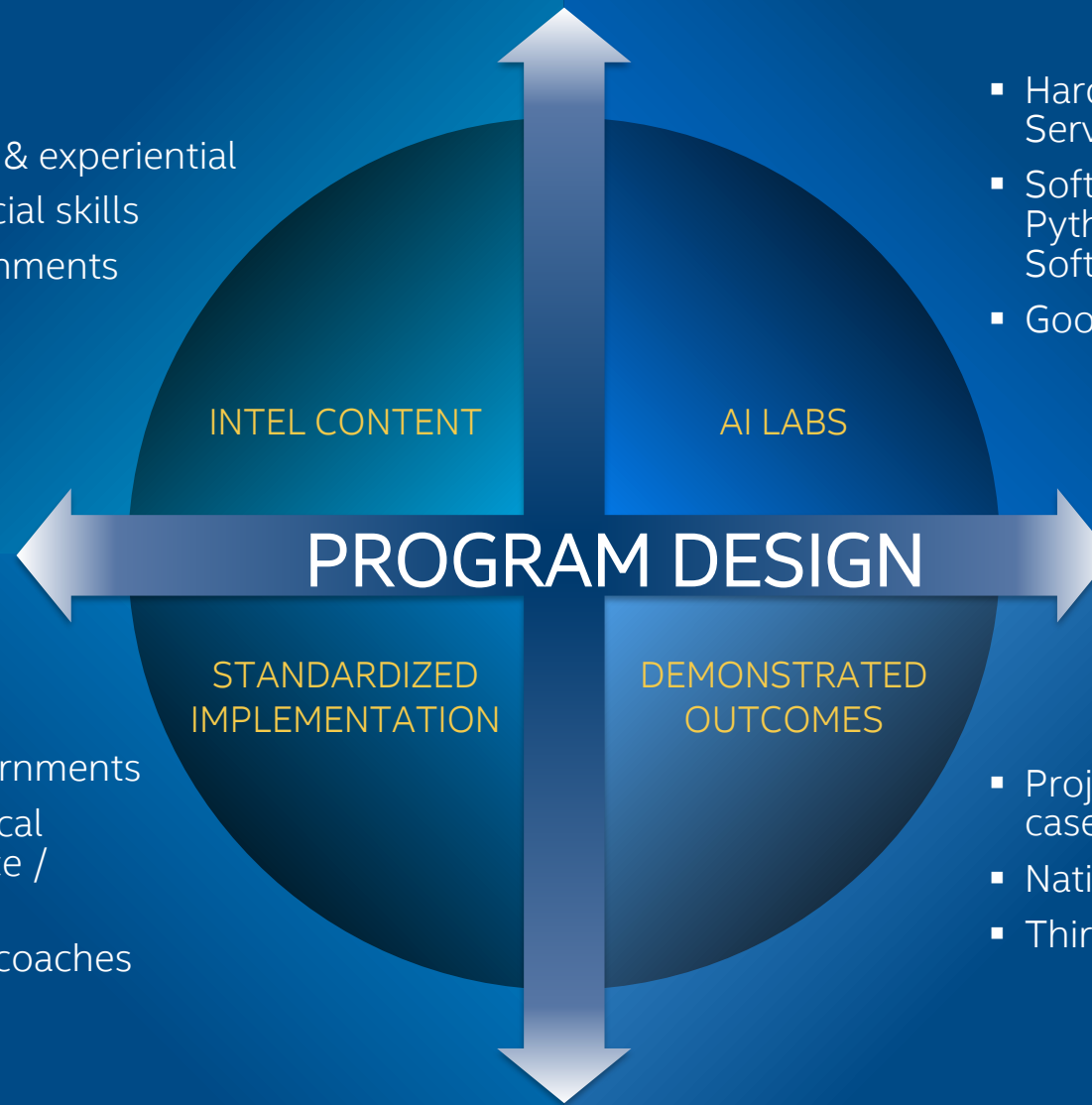
- Democratize access to AI tools with Intel technologies and train youths to use them skillfully.



Create solutions with AI

- Meaningful social impact solutions as evidence of achievement.

- Modular, hands-on & experiential
- Covering tech & social skills
- Validated by governments



- Hardware (Core™ i5+ Workstations, Servers, NCS2)
- Software (Intel® Distribution for Python & OpenVINO™ toolkit, Intel Software libraries)
- Good – Better – Best BOM

- Co-funded by governments
- Delivery through local partner (face-to-face / remote)
- Trained & certified coaches

- Project work resulting in local use cases
- National showcase
- Third party impact evaluation

Two Versions

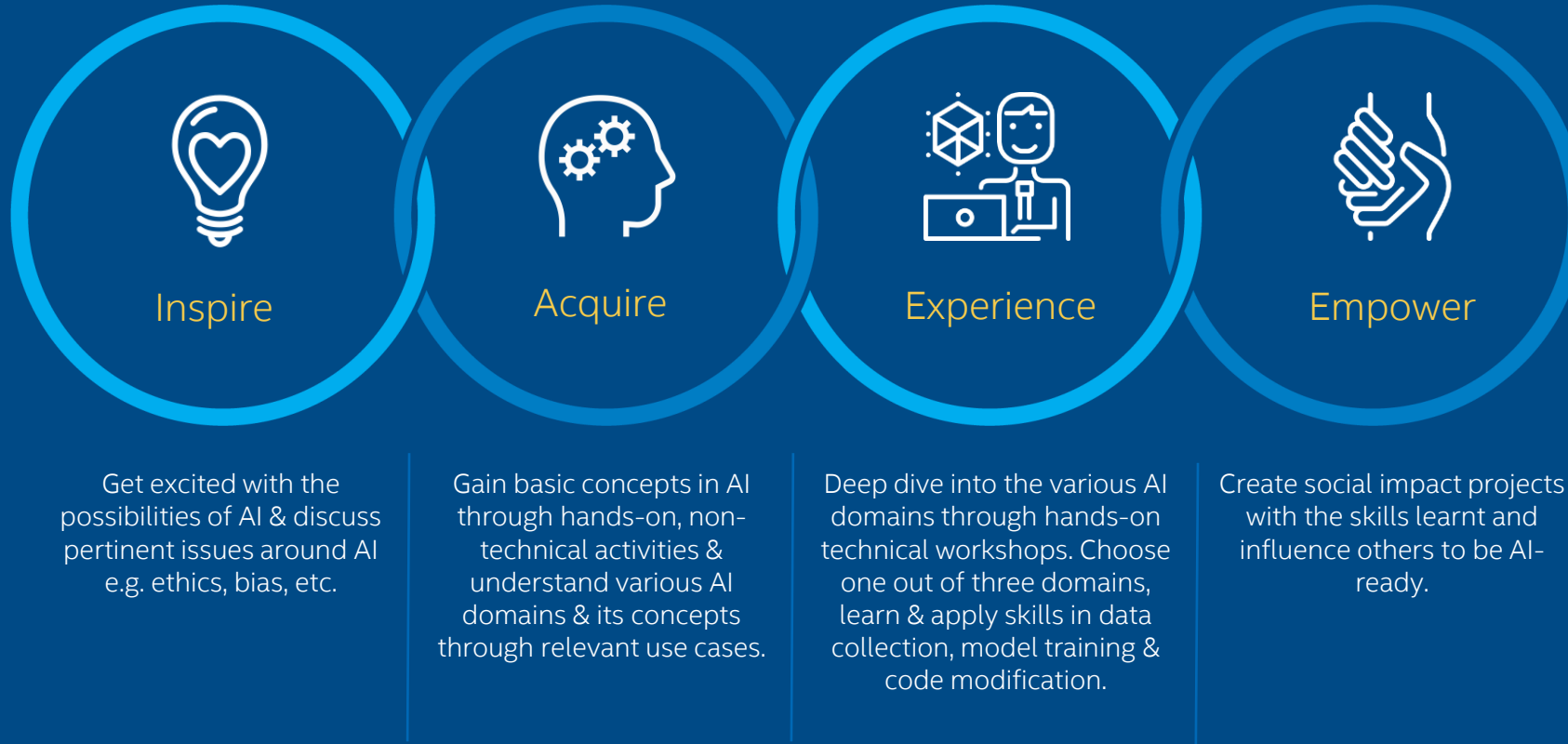
Full

- Age range : 13-19 year olds
- 176 hours of content across 33 modules in 4 stages. Empower stage is critical
- Covering Statistical Data, Computer Vision, NLP
- **Comprehensive, in-depth content**, suited for multi-year K12 curriculum
- Pre-requisite of strong mathematical statistical skills and python required. Optional modules available
- Full Program Management and Implementation Support
- Intel provides content + partner training and ongoing program management support

Express

- Age range : 13-16 year olds
- 32 Hours of content across 11 modules in 4 stages. Empower stage is optional. **For time constrained systems**
- Covering Computer Vision only
- **Less tech focused, more introductory**, suited for one-year K12 curriculum/non curriculum engagement
- Basic Python syntax understanding is sufficient. Can be provided as an optional module, if needed
- Light Program Management and Implementation Support
- Intel provides content + partner training. Partner takes full implementation responsibility

The Learning Journey:



4-stage learning journey to equip youths with the mindsets and skillsets for AI-readiness

Learning Objectives

Accurate understanding of AI technology and its impact to the society.

- Understanding AI concepts and distinguishing between AI & non-AI technology.
- Ability to advocate how AI can be applied at home and school.
- Gain insights of AI societal implications - employment, ethics, privacy, inequality, inclusion, bias.

Ability to use AI tools and methodologies responsibly to create purposeful solutions.

- Applying the AI project development process & choosing the appropriate AI tools.
- Building AI solutions in 3 domains: computer vision, natural language processing, and statistical data.
- Modifying original AI model provided in the course to suit youths' project needs.

Using AI to make meaningful solutions to address various local and global challenges.

- Identifying current issues in the community & determining the addressability of the issues with AI.
- Building an AI solution for an identified issue in the community.
- Evaluating positive & negative implications of AI solution, & recommendations to minimize the negative implications.



Example of Student Outcomes

Gain AI technology & social skillsets and mindsets for AI readiness

Impact Showcase

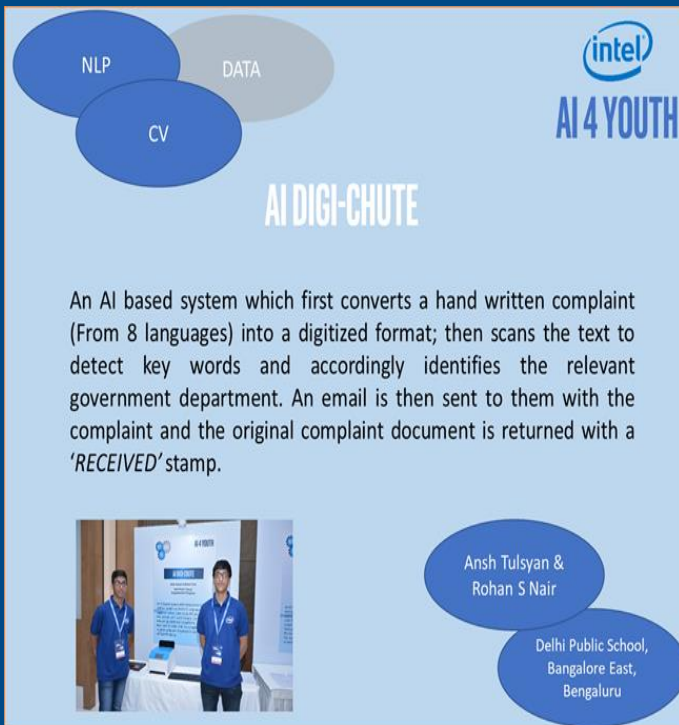
A 15-year-old girl from India developed 'HAPPINESS GURU' solution to predict the onset of depression amongst school children using Computer Vision.

- Solution implemented in 6 community schools
- Now motivated to be an AI Ethics Lawyer



More Examples

India




NLP DATA CV

intel AI 4 YOUTH

AI DIGI-CHUTE

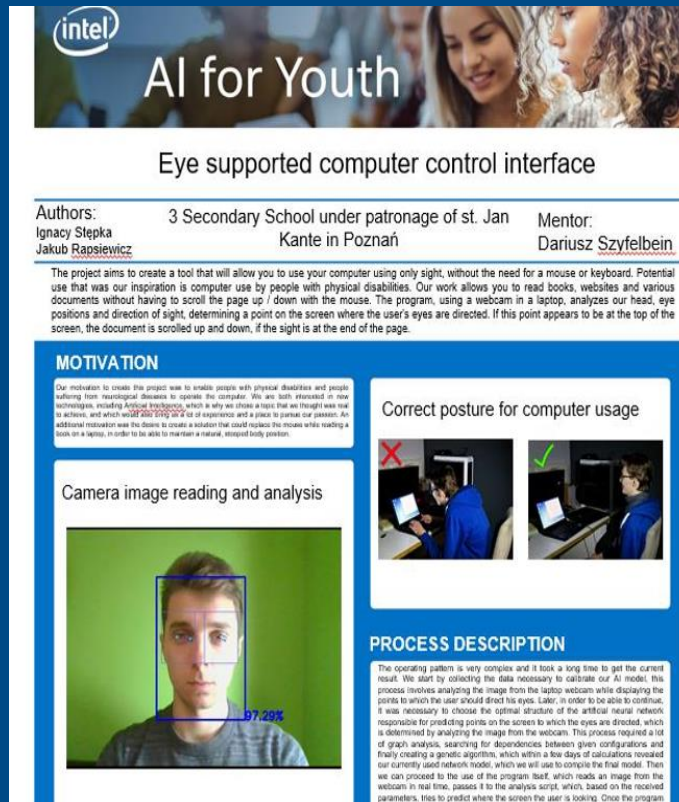
An AI based system which first converts a hand written complaint (From 8 languages) into a digitized format; then scans the text to detect key words and accordingly identifies the relevant government department. An email is then sent to them with the complaint and the original complaint document is returned with a 'RECEIVED' stamp.



Ansh Tulsyan & Rohan S Nair

Delhi Public School, Bangalore East, Bengaluru

Poland



intel AI for Youth

Eye supported computer control interface

Authors: Ignacy Stepka, Jakub Rapsiewicz

3 Secondary School under patronage of st. Jan Kante in Poznań

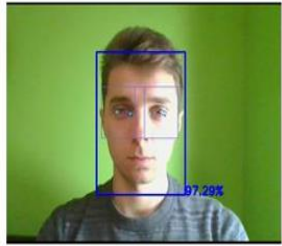
Mentor: Dariusz Szyfelbein

The project aims to create a tool that will allow you to use your computer using only sight, without the need for a mouse or keyboard. Potential use that was our inspiration is computer use by people with physical disabilities. Our work allows you to read books, websites and various documents without having to scroll the page up / down with the mouse. The program, using a webcam in a laptop, analyzes the head, eye positions and direction of sight, determining a point on the screen where the user's eyes are directed. If this point appears to be at the top of the screen, the document is scrolled up and down, if the sight is at the end of the page.


MOTIVATION

Our motivation to create this project was to enable people with physical disabilities and people suffering from neurological diseases to operate the computer. We are both interested in new technologies, including digital technology, which is why we chose a topic that we thought was real to achieve, and which would allow us to use our experience and a piece to pursue our passion. An additional motivation was the desire to create a solution that could replace the mouse while reading a book on a laptop, in order to be able to maintain a natural, stopped body position.

Camera image reading and analysis



Correct posture for computer usage



PROCESS DESCRIPTION

The operating pattern is very complex and it took a long time to get the current result. We start by collecting the data necessary to calibrate our AI model. This process involves analyzing the image from the laptop webcam while displaying the points to which the user should direct his eyes. Later, in order to be able to continue, it was necessary to choose the optimal structure of the artificial neural network responsible for predicting points on the screen to which the eyes are directed, which is determined by analyzing the image from the webcam. This process required a lot of graph analysis, searching for dependencies between given configurations and finally creating a genetic algorithm, which within a few days of calculations revealed our currently used neural network, which we will use to compare the final model. Then we can proceed to the use of the program itself, which reads an image from the webcam in real time, passes it to the analysis script, which, based on the received parameters, tries to predict where the screen the user is looking. Once the program determines this point, it reflects its coordinates to the selected application, scrolls the screen.

S. Korea



CV + NLP

AI Interphone

a Security Interphone for Blind

He opened the door without knowing who visited the house, but he was a bad person, so he was able to prevent possible crimes by informing them of who they are with artificial intelligence.



If artificial intelligence recognizes people in real time and determines whether the person in front of them is a stranger or a person they know, it will tell them their names.



The intercom informs us that A.I. recognizes the name of the person or a stranger.



The person at home decides whether to open the door or not.

Team : TanTan

JiSeok-Jeong, DongHwan-Kim, SunYeong-Choi, JinWoo-Lee

We will strive for the socially weak.

Busan Computer Science High School

High-Tech, High-Touch Delivery :

Remote / Face-To-Face



Intel supported AI skill labs or remote learning



Self-paced student workshops and self-directed learning sessions



Interactive learning sessions by intel certified coaches



Project-based immersive games activities (Face-to-Face/Remote)

With Intel AI Labs

For training coaches, student hands on implementation, project building & showcasing



SINGAPORE



Using Intel hardware and software:

Hardware : Core i5+, NCS2, IWB, Xeon class server

Software : Intel Python, OpenVINO and other Intel libraries

Can be customised per country specific needs



CHINA



Building AI Readiness: The Intel Differentiator

Skillsets	+	Mindsets	+	Toolsets
AI Tech Skills: Statistical Data, Computer Vision, Natural Language Processing		Understanding the Future of Work. Become disruption ready		Intel Hardware : Core™ i5+ (Intel® NUC/Laptop/Desktop), Intel® Neural Compute Stick 2, Xeon Servers
AI Social Skills: AI Ethics, Security, Privacy, Fairness, Explainability		Discovering the Social Purpose of AI. Deep Understanding of Possibilities & Pitfalls.		Intel Software: Intel® Distribution of Python, OpenVINO™ Toolkit
System Thinking & Social Impact Creation		Resilience, Leadership, Team Building & Collaboration		AI-relevant Libraries, Platforms & Frameworks for Inference & Trainings
Program management, partnership and policy support for scalable impact outcomes to build human-centric AI skills				



“Don’t be encumbered by history.
Go off and do something wonderful.”

Robert Noyce

Co-Founder of Intel

