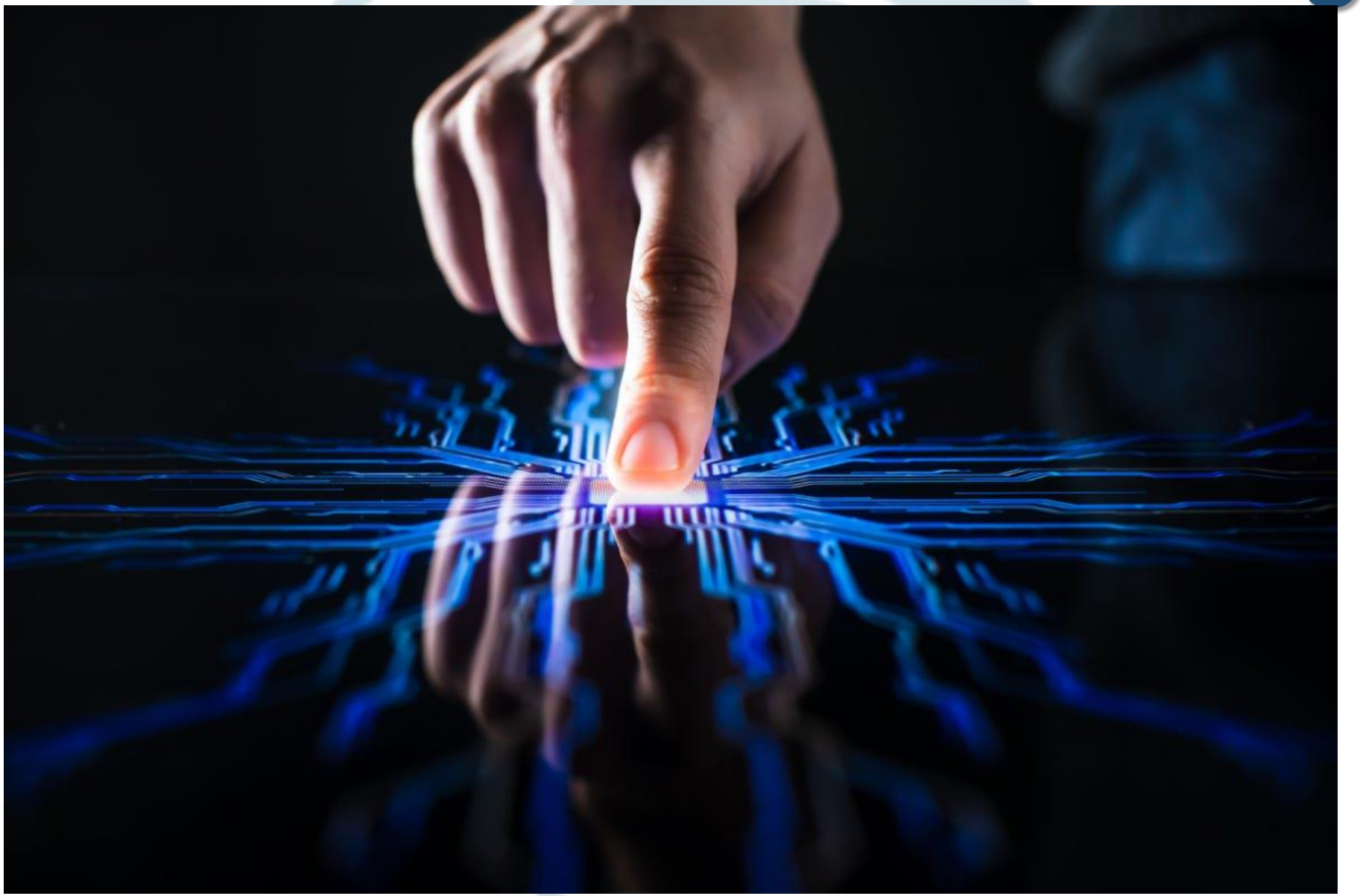
Applications of AI in Education

ChatGPT & AI in Education

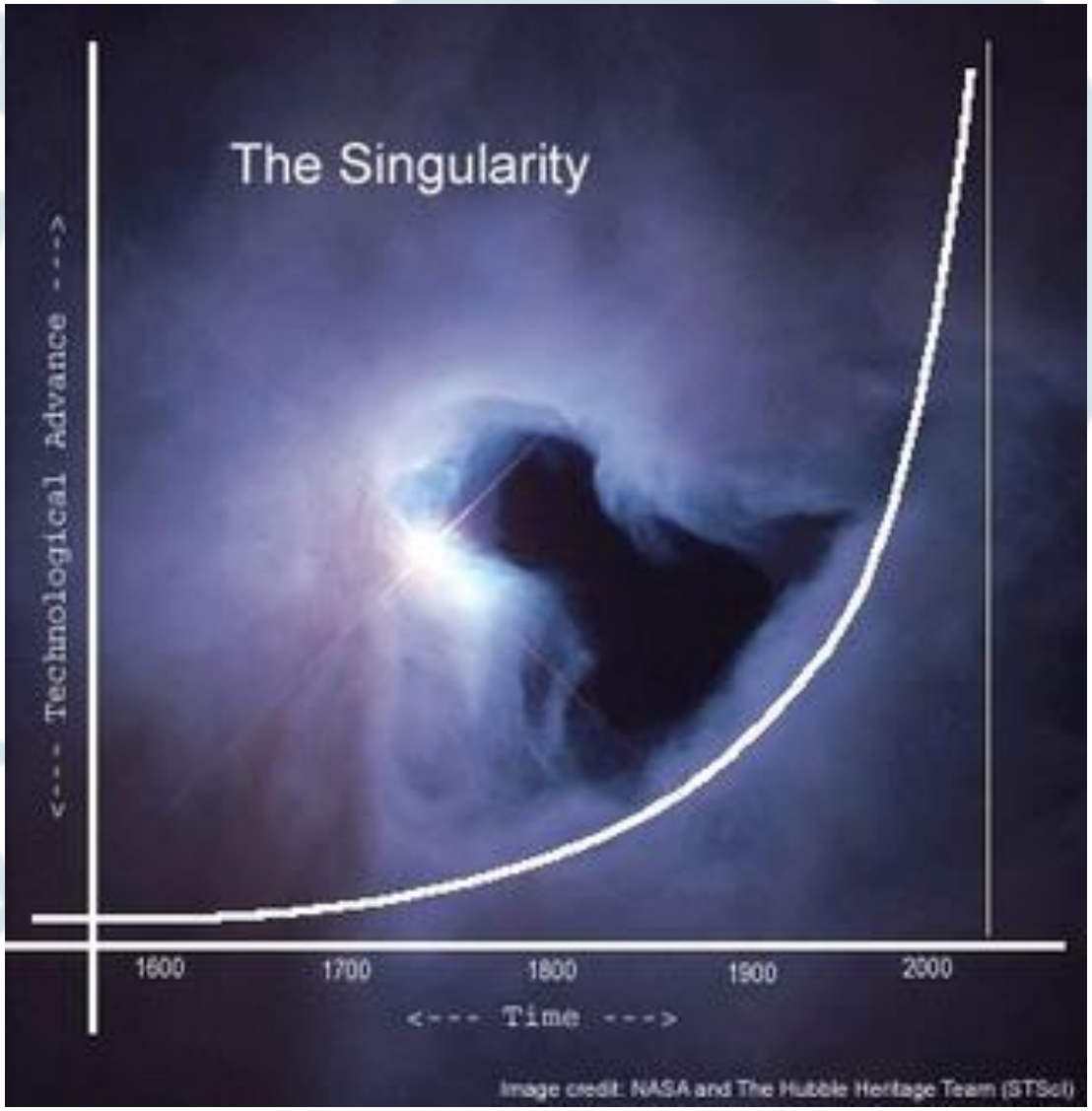
Our roadmap for the day.

- Overview – applications, implications.
- General Purpose Applications.
- Applications for Reading and Writing.
- Subject-specific applications.
- Professional use.
- Ethical and social implications.

Chat GPT – a Game Changer



The Singularity



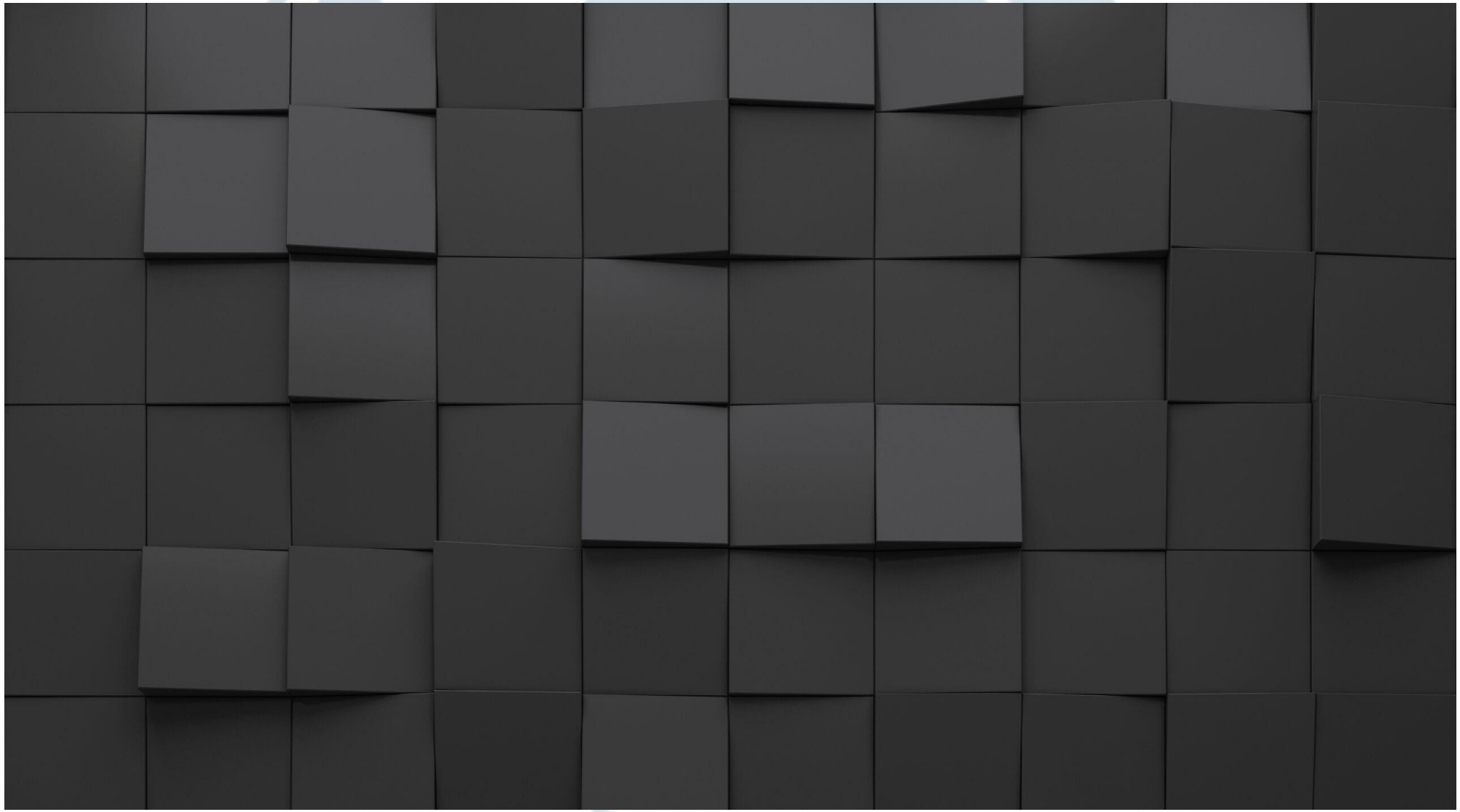
Augmented Reality

Augmented Reality

Virtual Reality

Big Data

The Black Box Effect

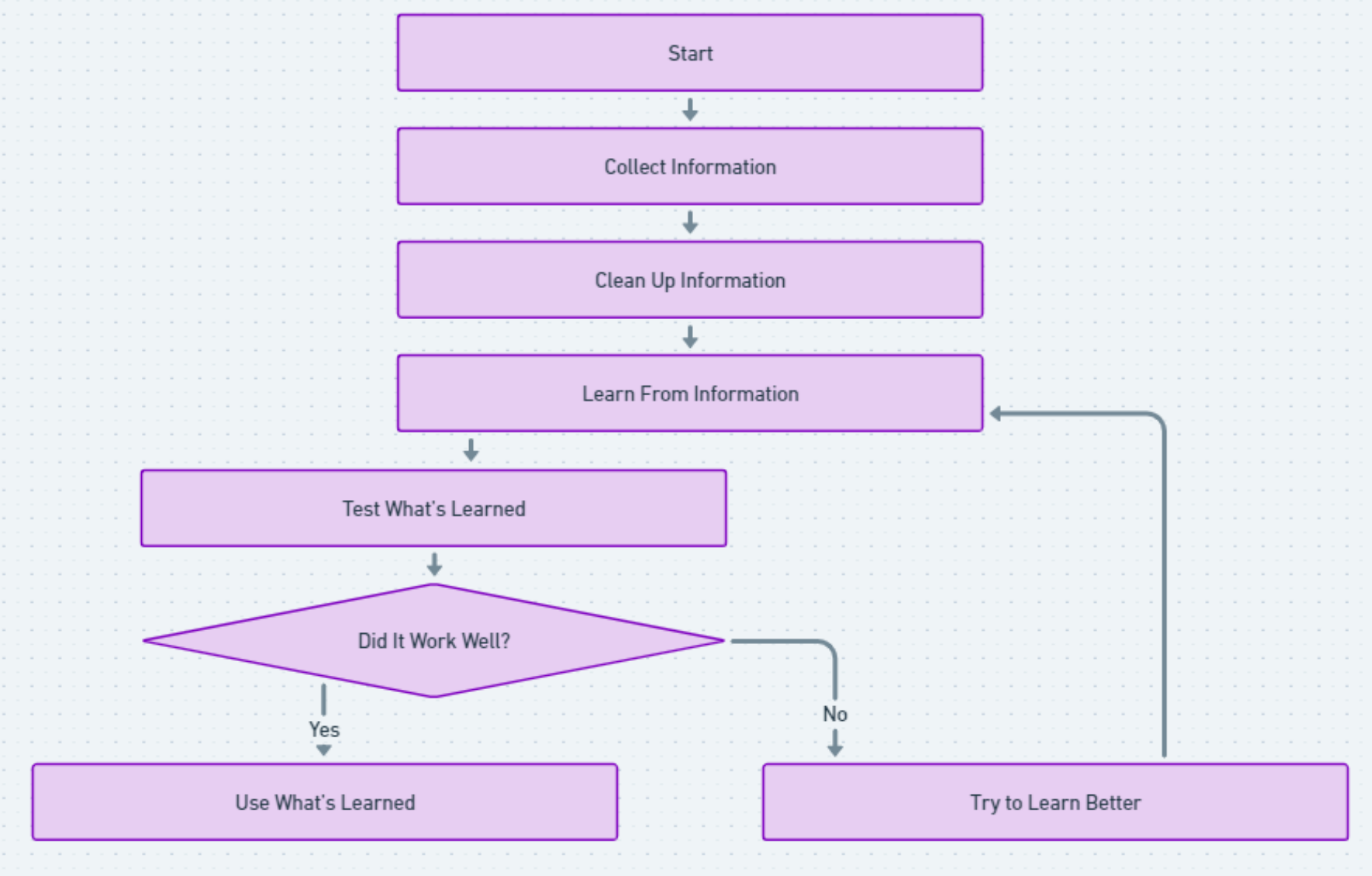


The Black Box Effect

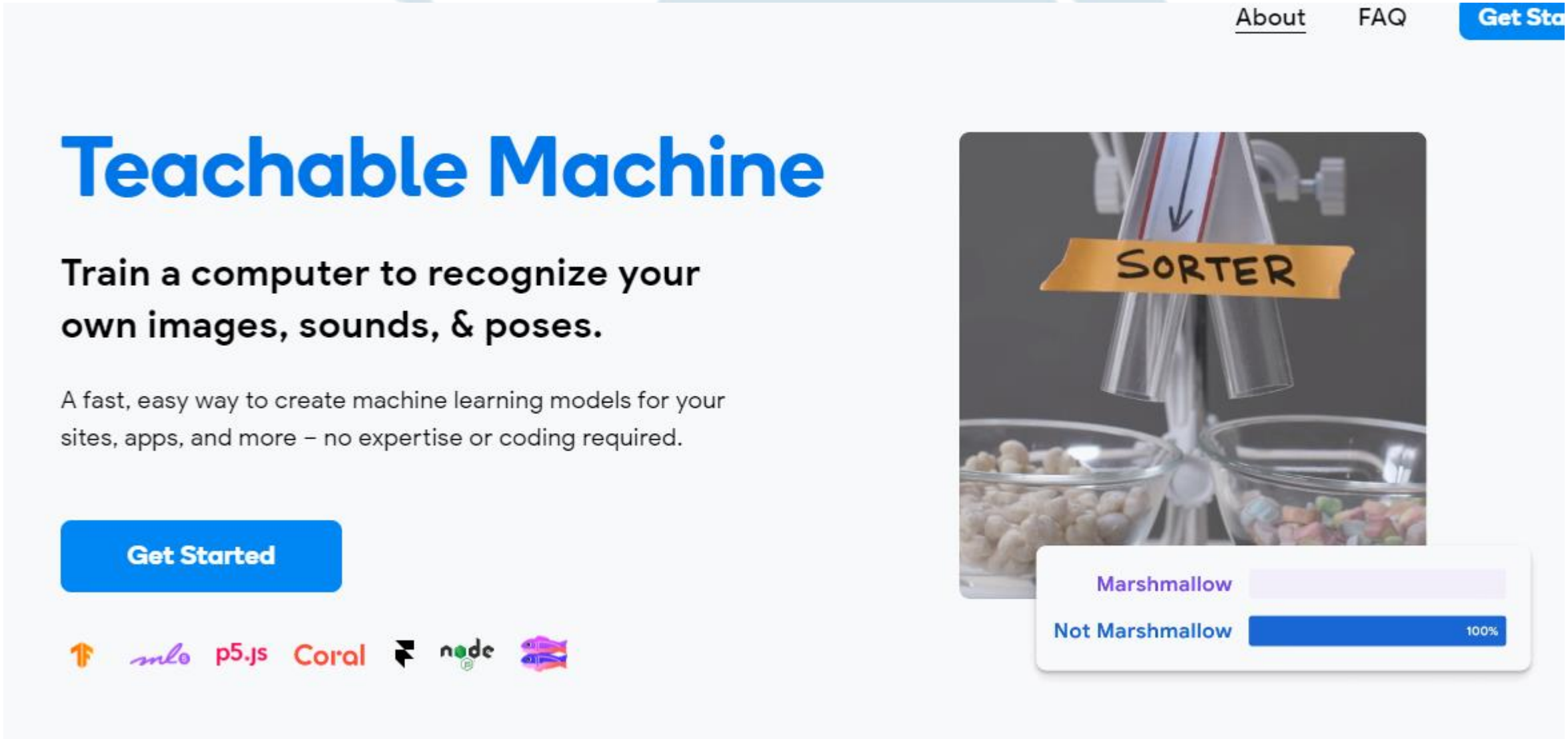
Machine Learning

- A branch of artificial intelligence with focus on predictive algorithms.
- Techniques: Supervised learning, unsupervised learning, and reinforcement learning.
- Applications: Spam filtering, recommendation systems, and self-driving cars.

Machine Learning



Google Teachable Machine

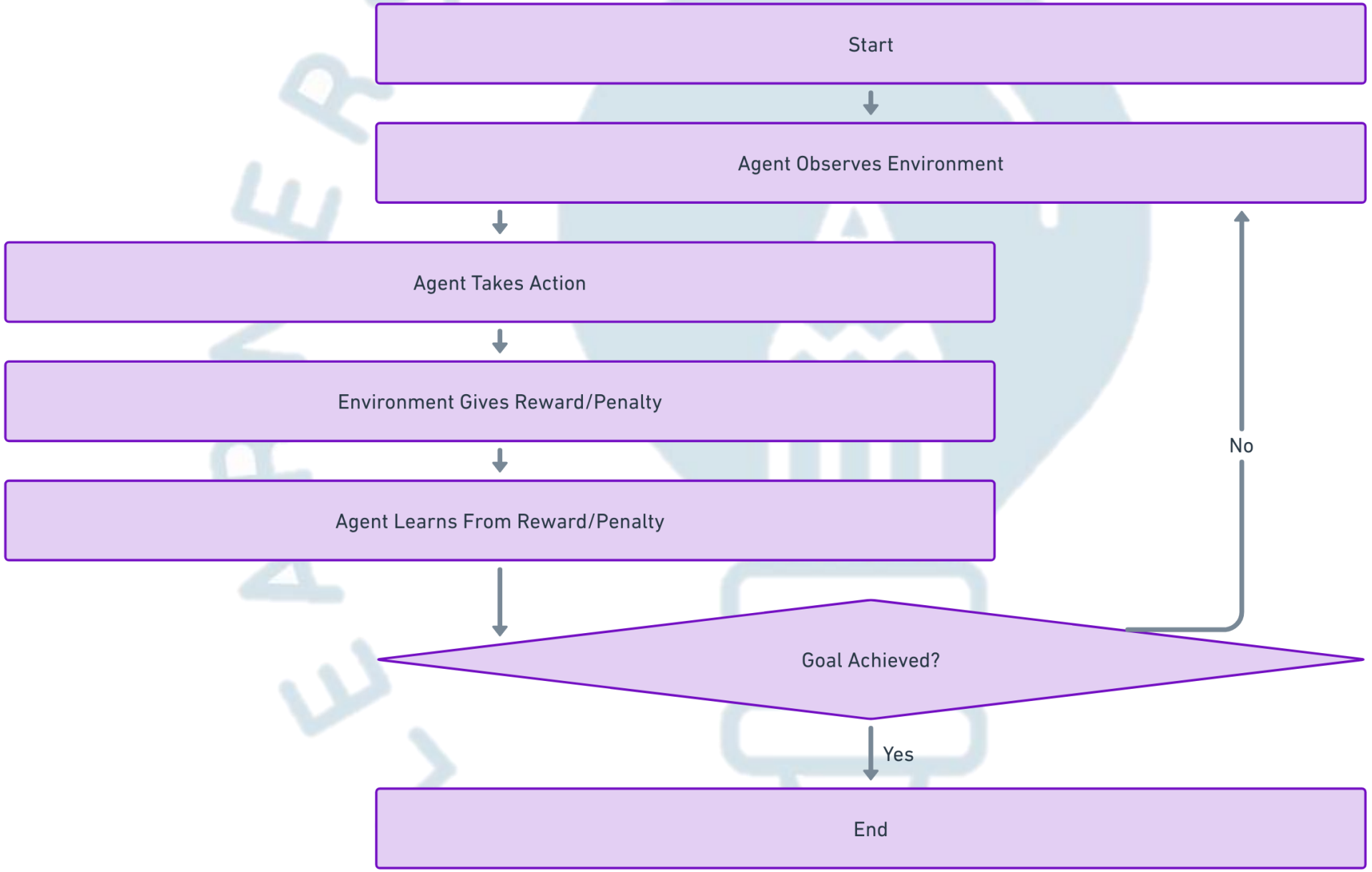


AI in Education

Reinforcement Learning

- Learning through interaction with an environment, receiving rewards or penalties.
- Maximize cumulative rewards over time, learning optimal policy for decision-making.
- Applications: Robotics, game playing, and resource allocation.

Reinforcement Learning

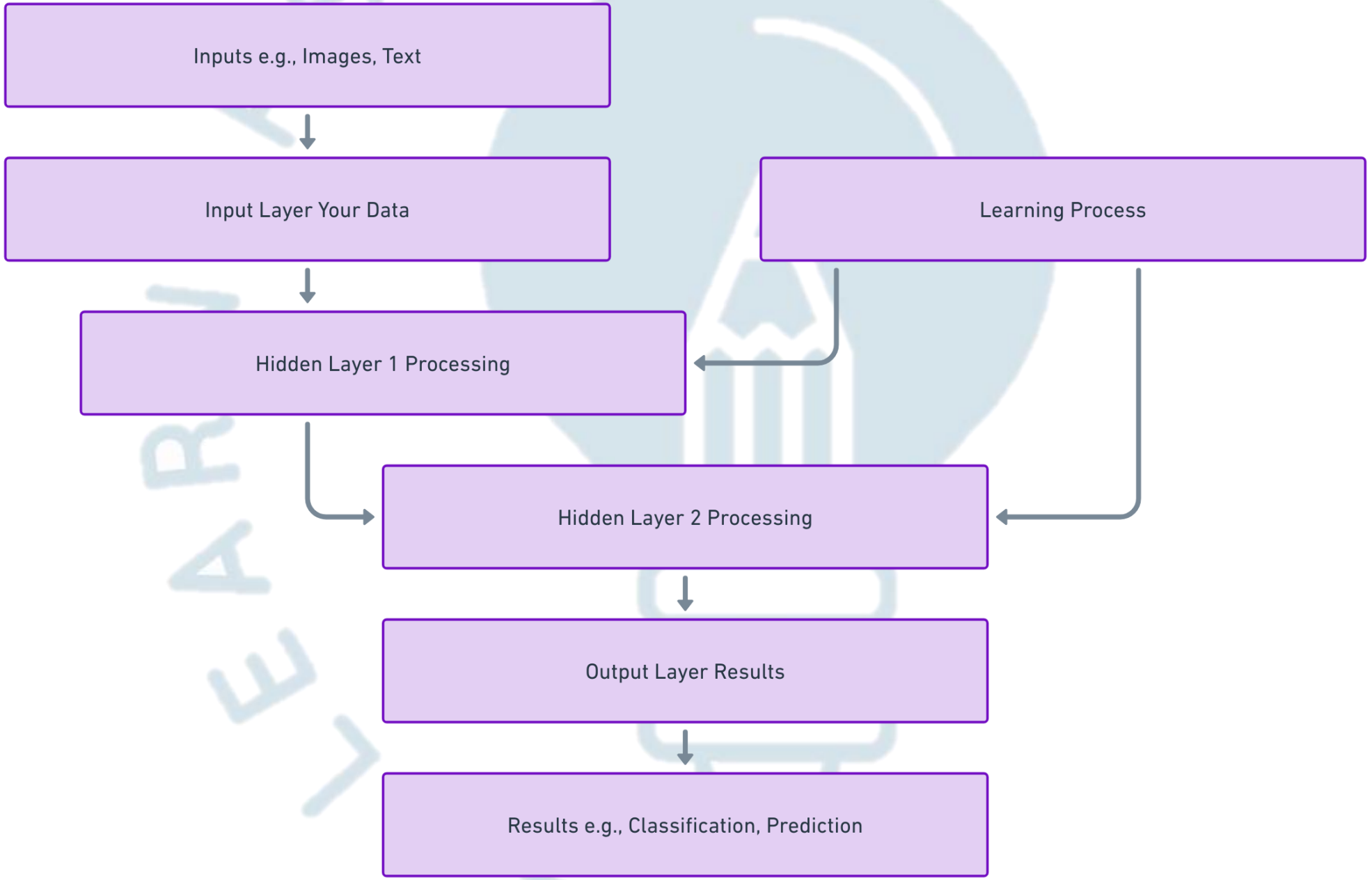


AI in Education

Neural Networks

- Interconnected layers of artificial neurons designed for data processing and learning.
- Mechanism: Adjusts connection weights through training for pattern recognition and decision-making.
- Role: Fundamental component of modern AI applications.

Neural Networks

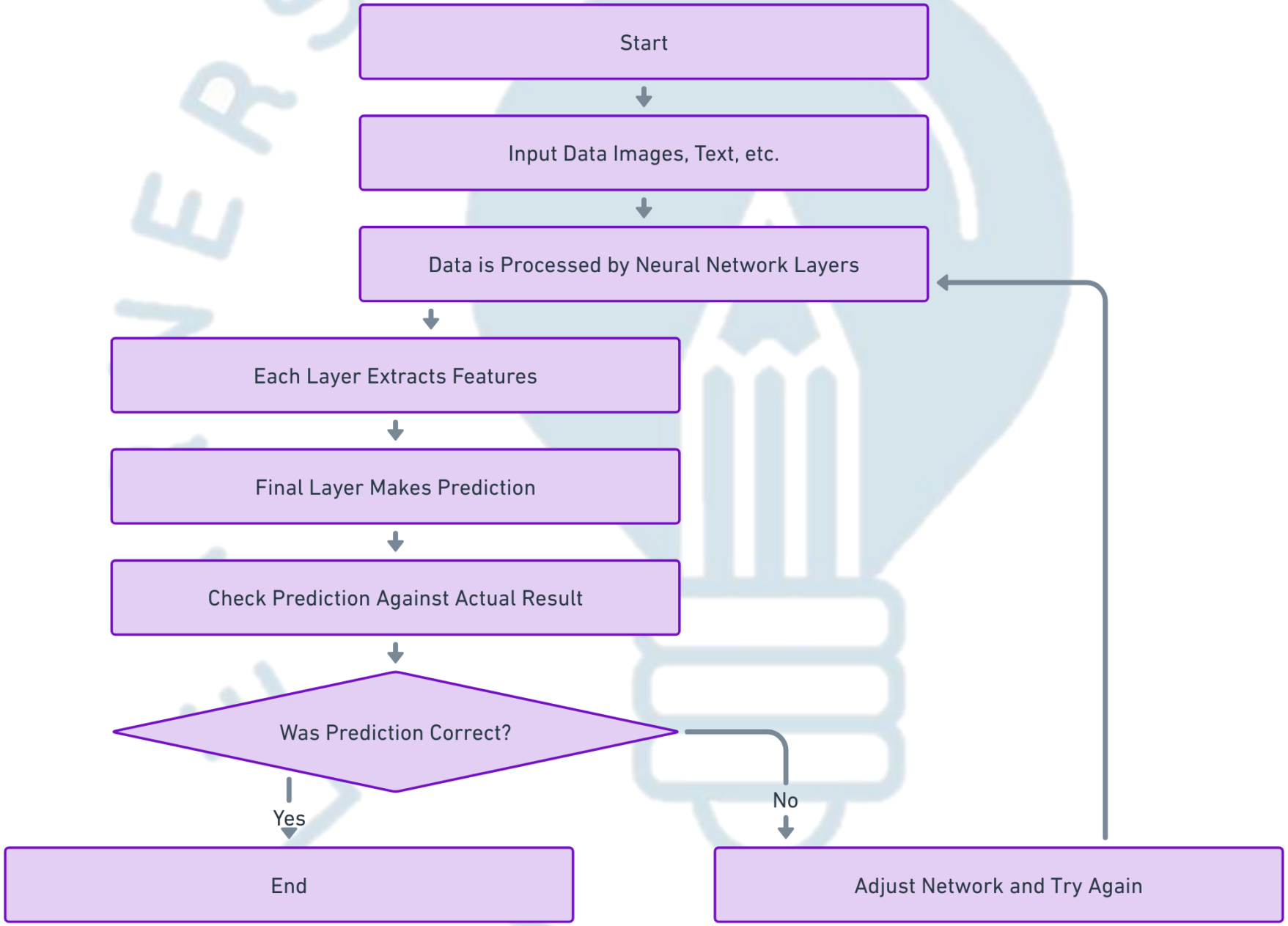


AI in Education

Deep Learning

- A subset of machine learning focusing on complex patterns in data.
- Tools: Utilizes multi-layered artificial neural networks.
- Specializations: Excels in tasks like image recognition, natural language processing, and speech recognition.

Deep Learning



AI in Education

Natural Language Processing (NLP)

- A subfield of AI enabling computers to comprehend and generate human language.
- Techniques: Text analysis, sentiment detection, and machine translation.
- Applications: Chatbots, voice assistants, and automated content generation.

AI in Education

Some basic terms and definitions

- Chat GPT is a Generative Pre-Trained Transformer.
- Created by OpenAI.
- Language Model based on Deep Learning.
- 175 billion learning parameters.

AI in Education

Chat GPT

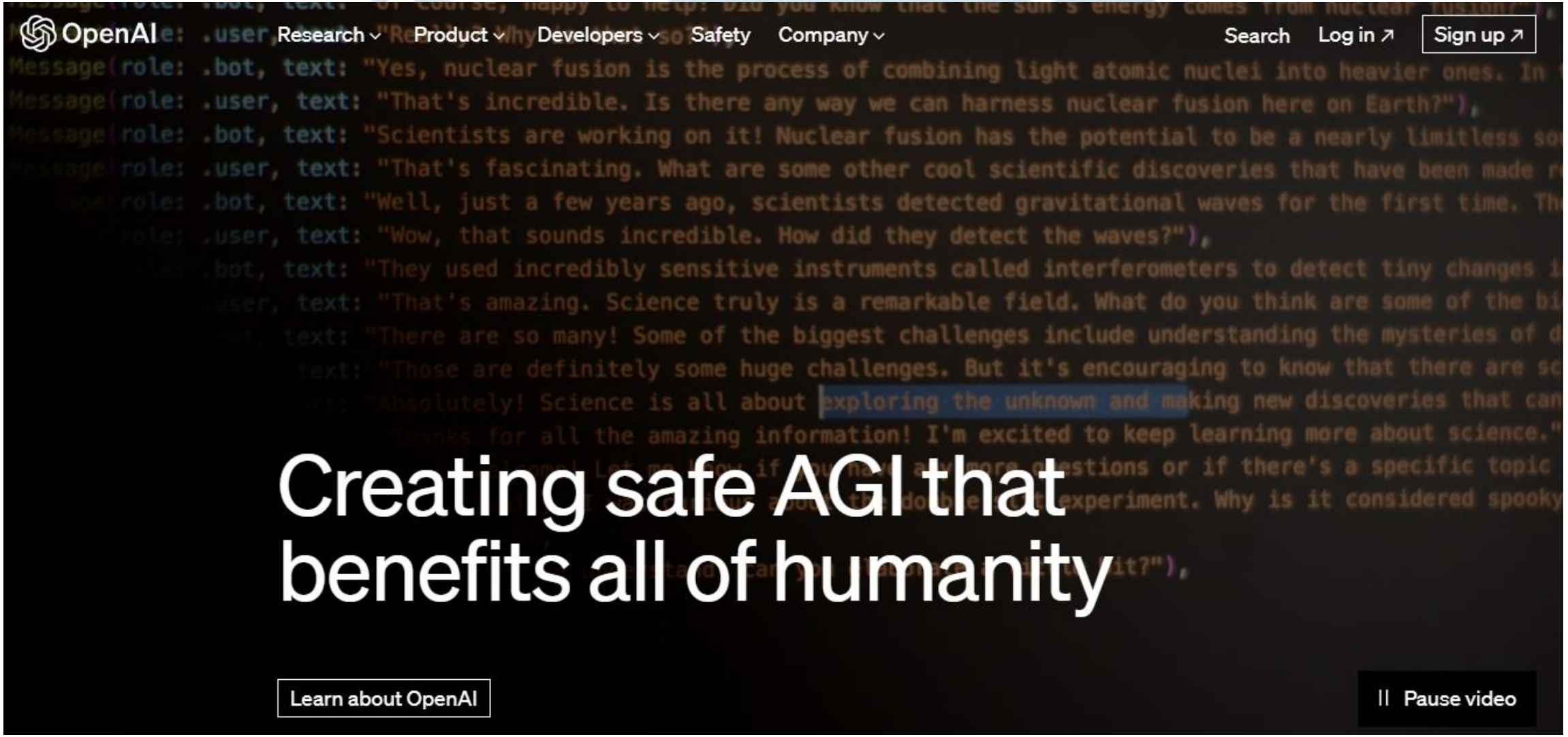
- Deep Learning Neural Network.
- Reinforcement learning, based on human feedback, was used for training.
- Most advanced Natural Language Processing model ever.
- Worst version we will experience.

AI in Education

Biases and human reinforcement

- Early models presented biases from data corpora.
- Gender biases.
- Racial and ethnic biases.
- De-biasing.

OpenAI


OpenAI
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Company
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Creating safe AGI that benefits all of humanity
Learn about OpenAI
Pause video

AI in Education

Risks of neural networks

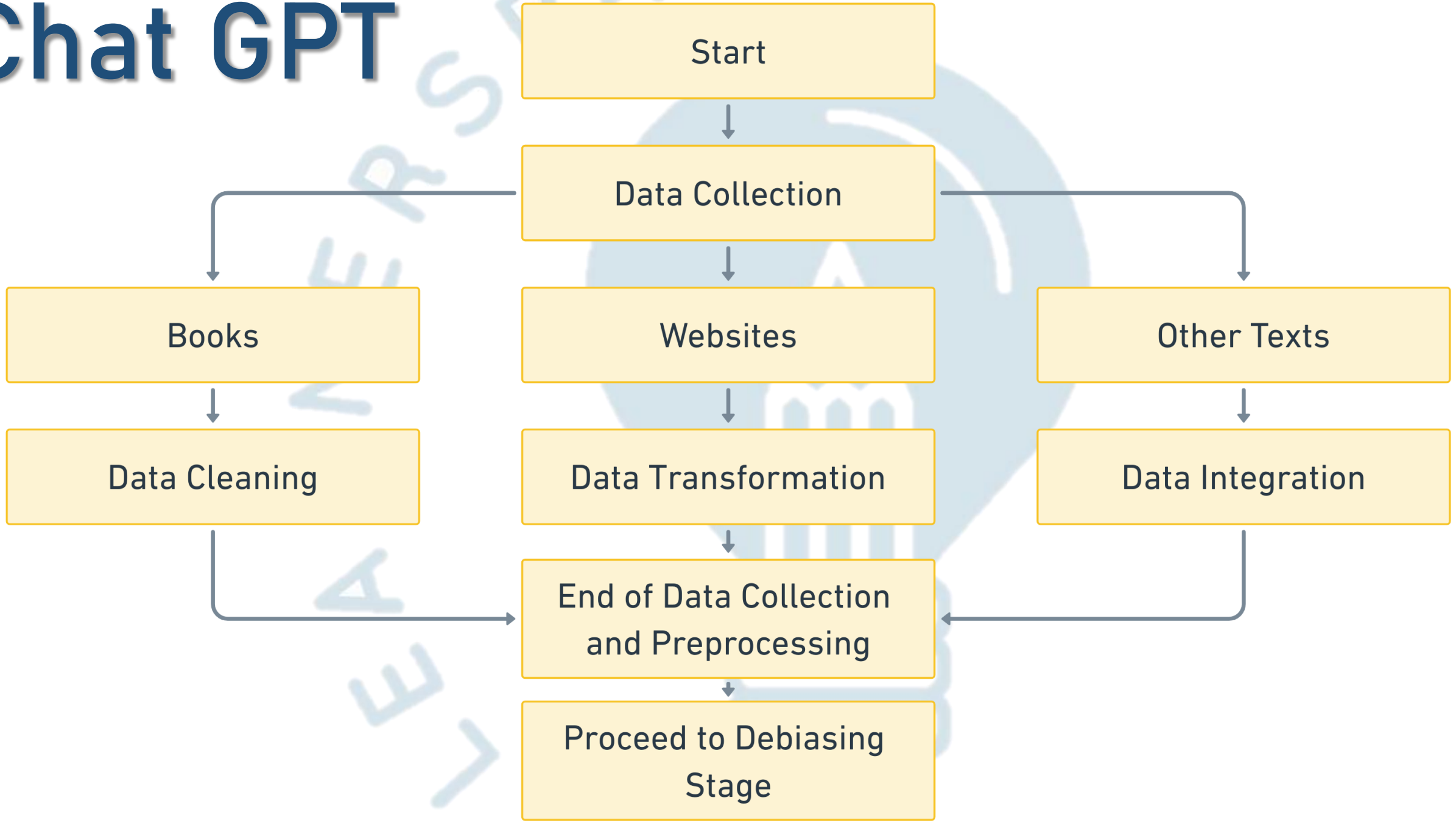
- Pneumonia research – rules model vs. neural networks.
- Opaqueness of model vs. accuracy.
- Transparency initiatives.
- Do people have the right to explanations when algorithmic decisions are made?

Chat GPT

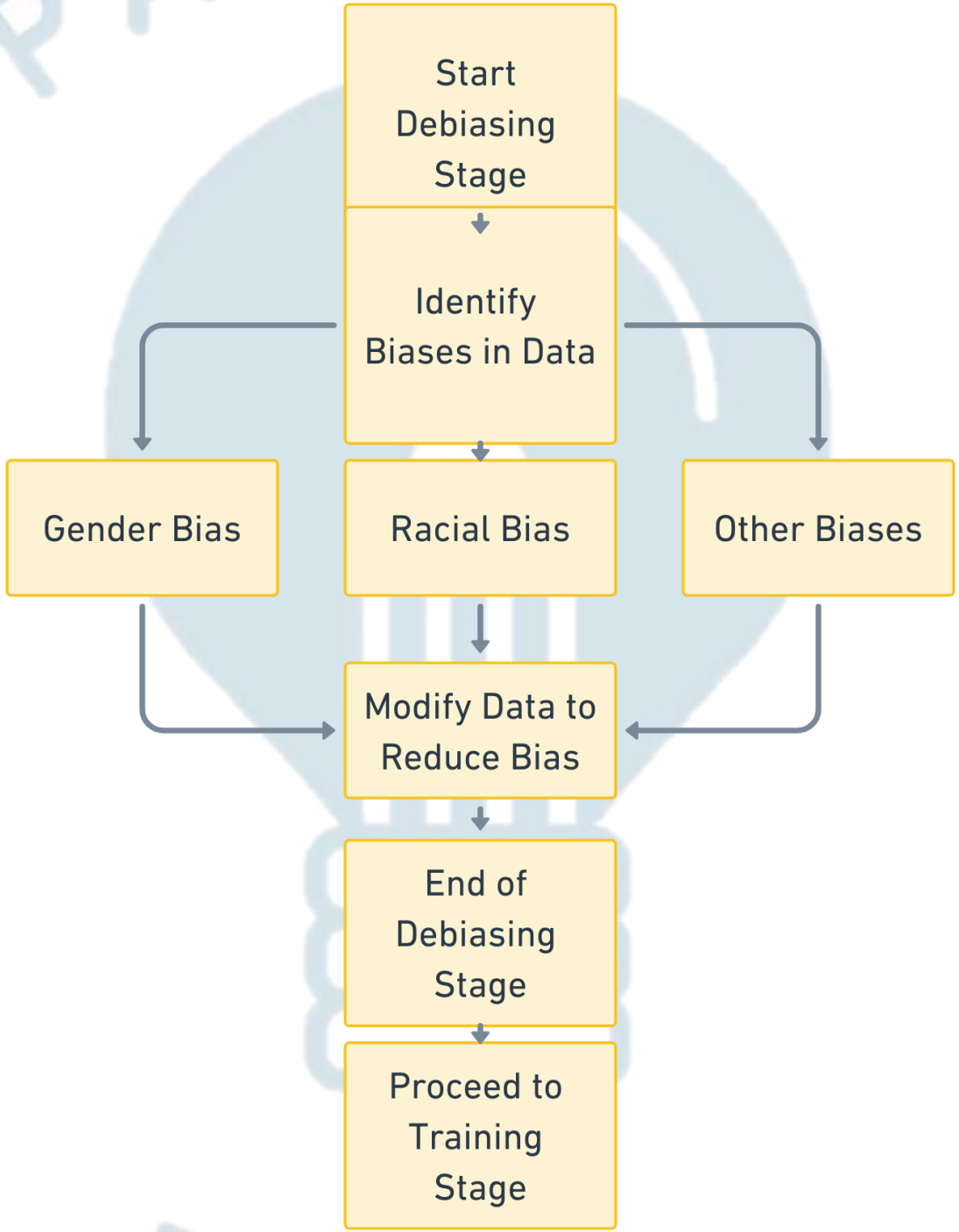
Limitations and implications

- Pre-trained, not real time or organic.
- No information post 2021.
- Closed knowledge base.
- Very expensive model.
- Human input for training.
- Never 100% error free.

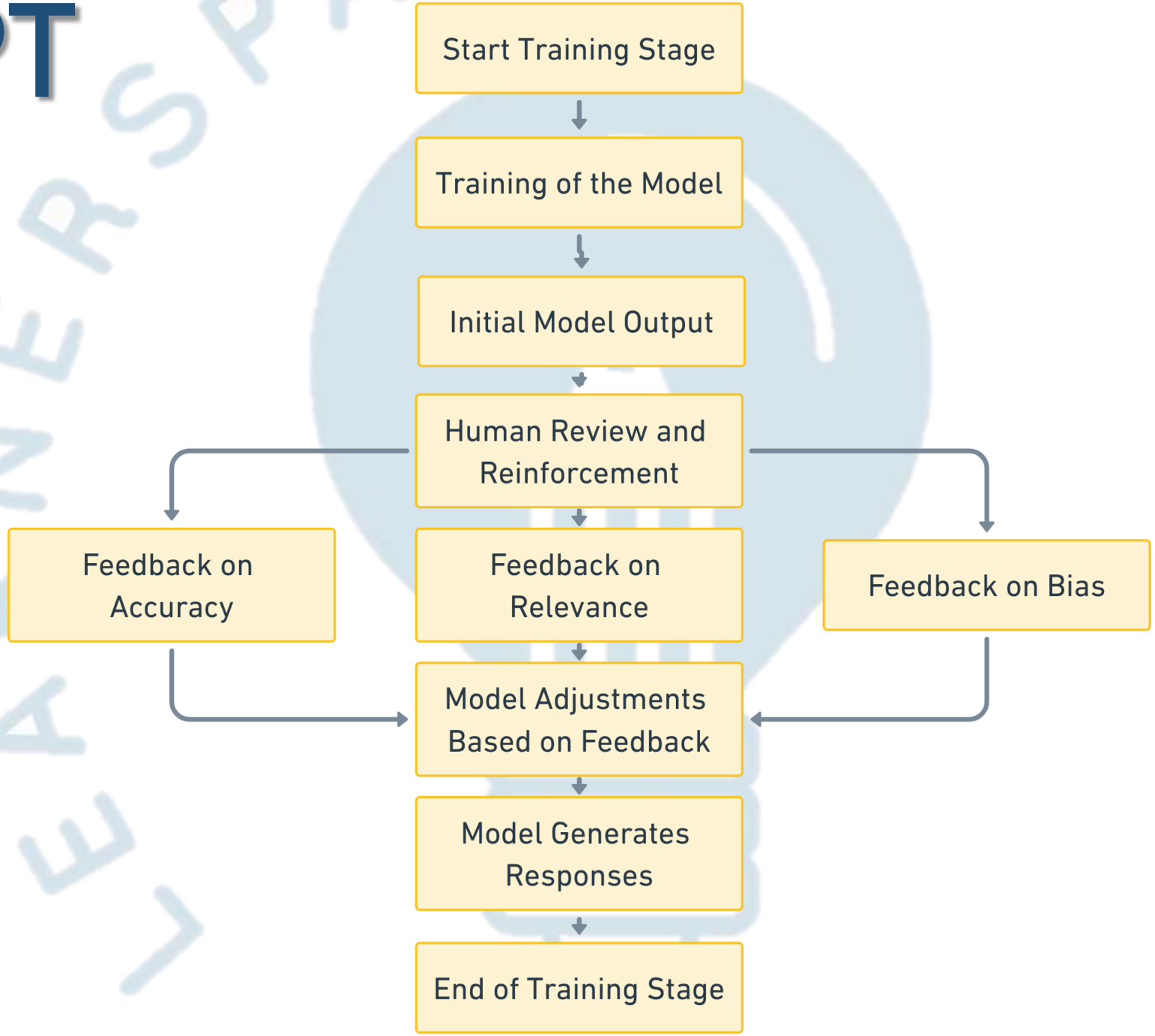
Chat GPT


Start
Data Collection
Books
Websites
Other Texts
Data Cleaning
Data Transformation
Data Integration
End of Data Collection and Preprocessing
Proceed to Debiasing Stage

Chat GPT


Start Debiasing Stage
Identify Biases in Data
Gender Bias
Racial Bias
Other Biases
Modify Data to Reduce Bias
End of Debiasing Stage
Proceed to Training Stage

Chat GPT

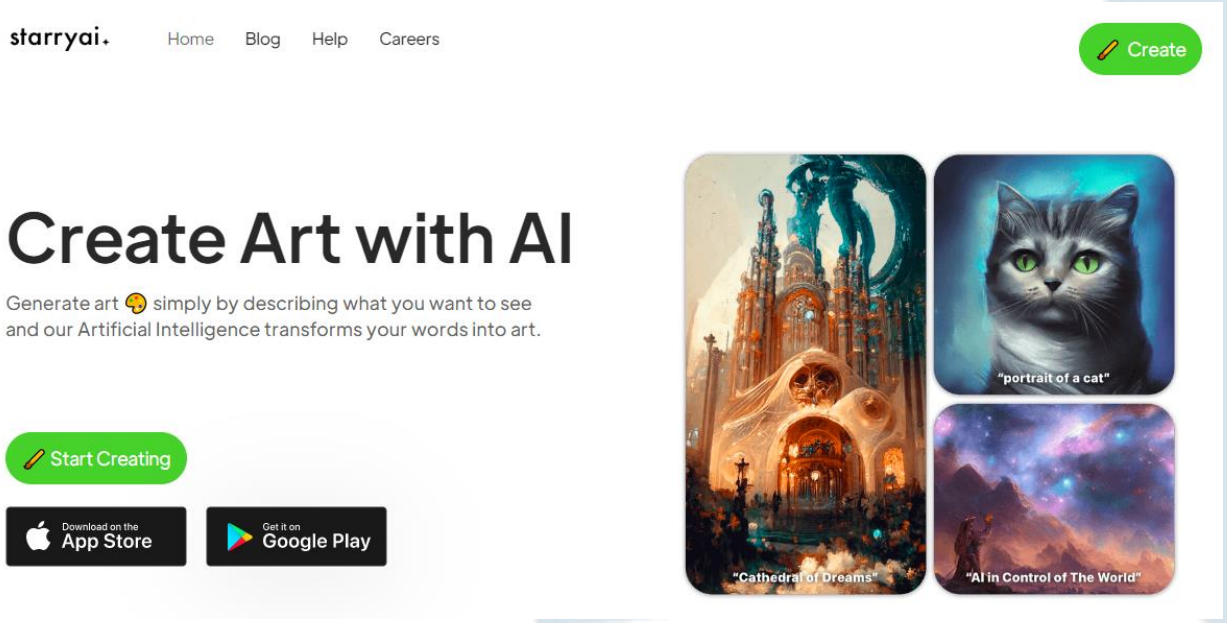

Start Training Stage
Training of the Model
Initial Model Output
Human Review and Reinforcement
Feedback on Accuracy
Feedback on Relevance
Feedback on Bias
Model Adjustments Based on Feedback
Model Generates Responses
End of Training Stage

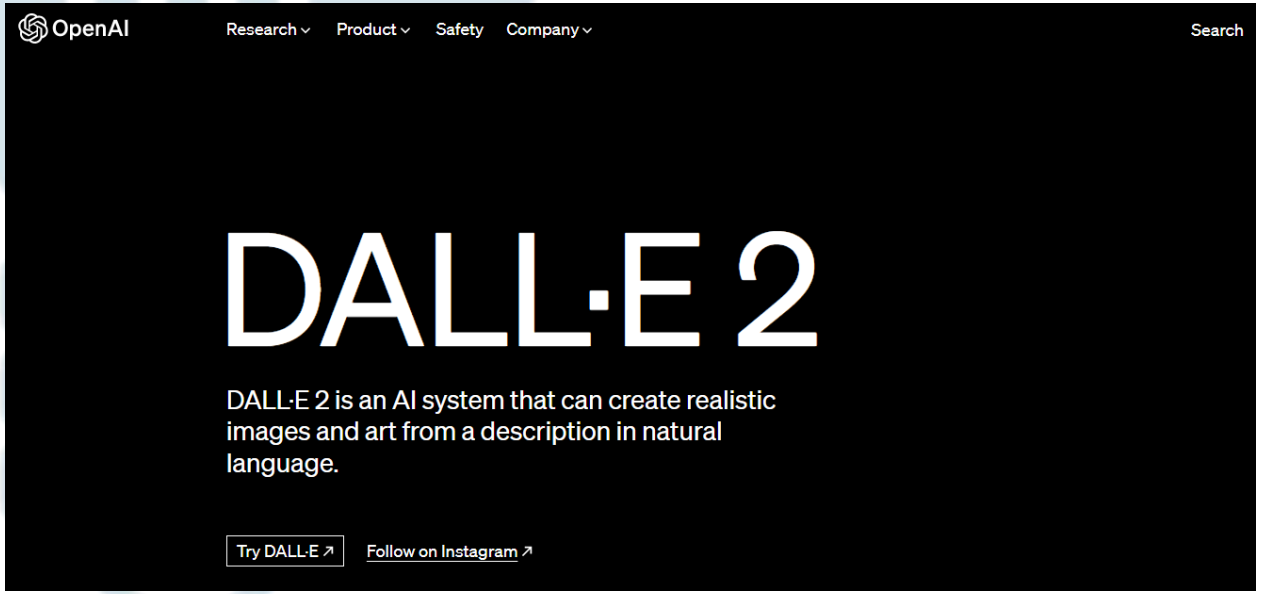
AI in Education

Chat GPT is only the beginning…

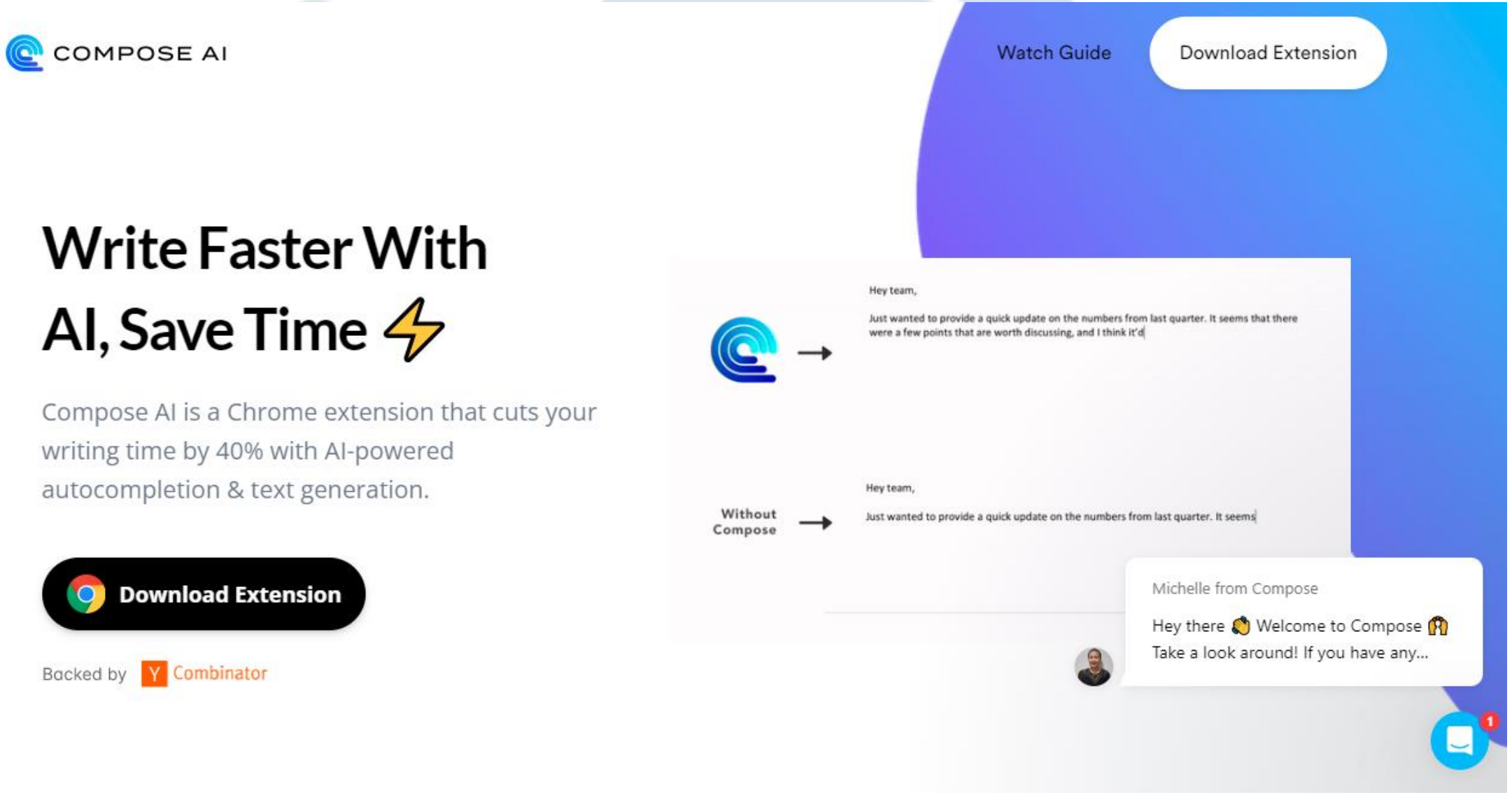
- Technology Applications that will revolutionize life and learning.
- The Black Box Effect.
- Applications to Learning.
- Ethical and social implications.

AI Image Generators

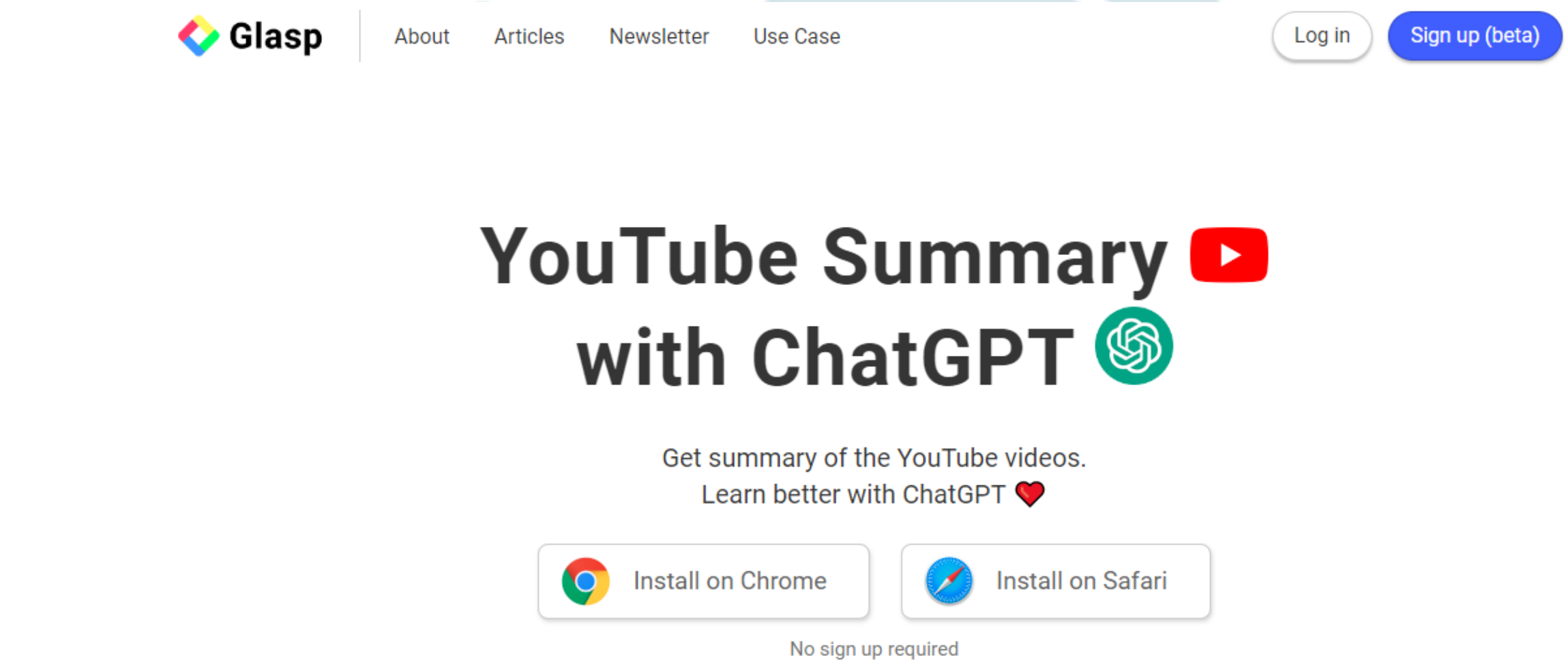




AI Writing Assistant



AI YouTube Transcript



AI Meeting Notes

Home Use cases Features Security Sign In Try for free

Effortless meeting notes and action items

Cogram takes automatic notes in virtual meetings and identifies action items, while keeping your data private and secure.

Try for free

Try Cogram in a 15-min live

Transcript:

Jane Wilde:

Hey all, great to meet everyone. So where are we on this?

Oscar Maine:

Hi Jane. We'll prepare and share an overview deck with your team this week. Please have your colleagues take a look at it.

Jane Wilde:

Thanks Oscar. Do you have a timeline for setting up an integration with our ERP? That would be very helpful.

Meeting Writeup:

Summary:

Jane Wilde and Oscar Maine discuss the setup of a software tool for procurement optimisation. They align on the steps required for approval. Jane Wilde asks about an ERP integration.

Action Items:

- Share an overview deck with Jane Wilde. Assignee: Oscar Maine
- Review with her colleagues. Assignee: Jane Wilde
- Check what the timeline for an ERP integration would be. Assignee: Oscar Maine

AI Slides Creator

Demo Help Guides Pricing Powerpoint FAQs Join Affiliate Program

SlidesAI now supports ES Spanish & IT Italian
The support for JP Japanese and FR French is coming soon! :)

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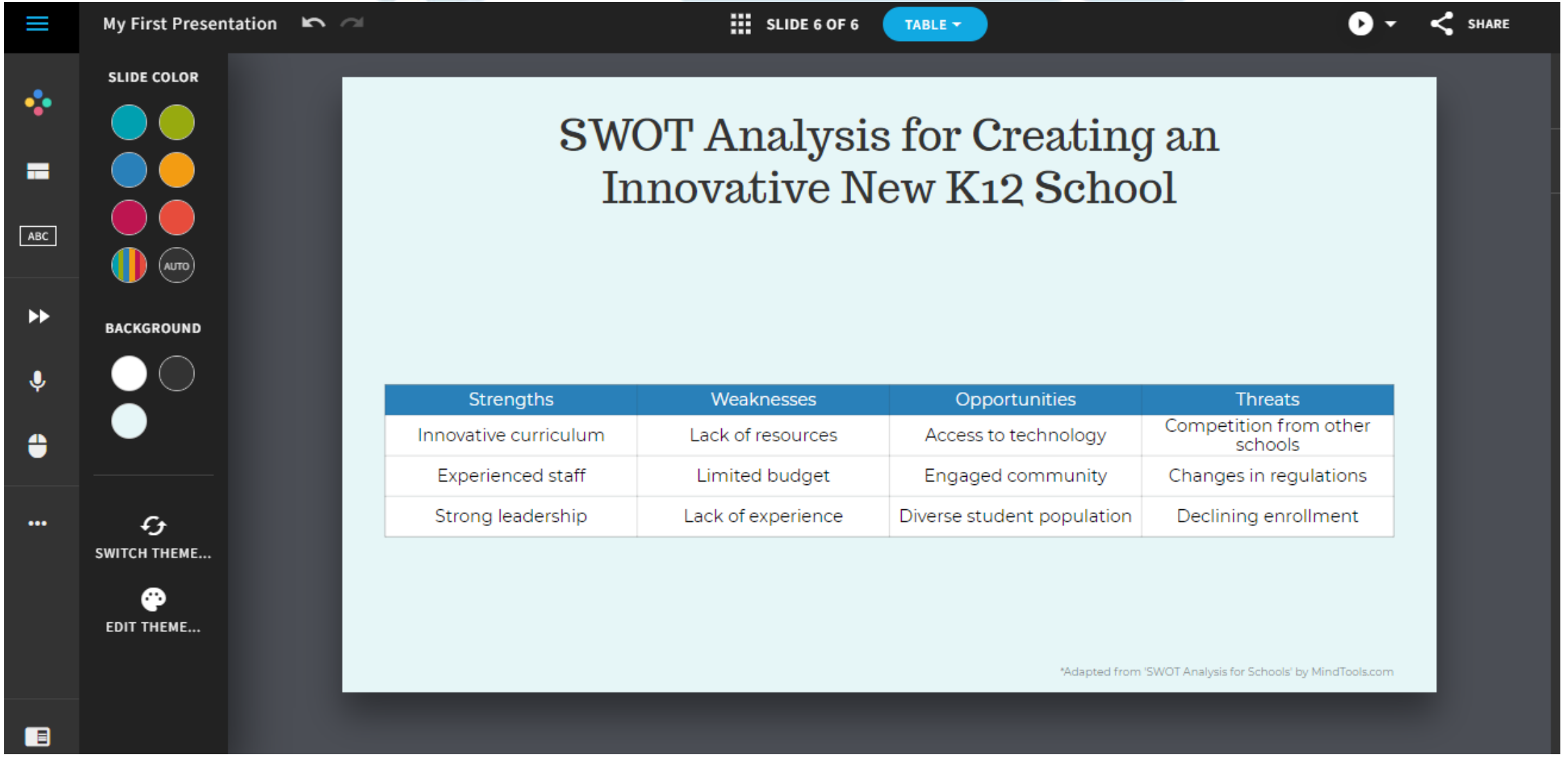
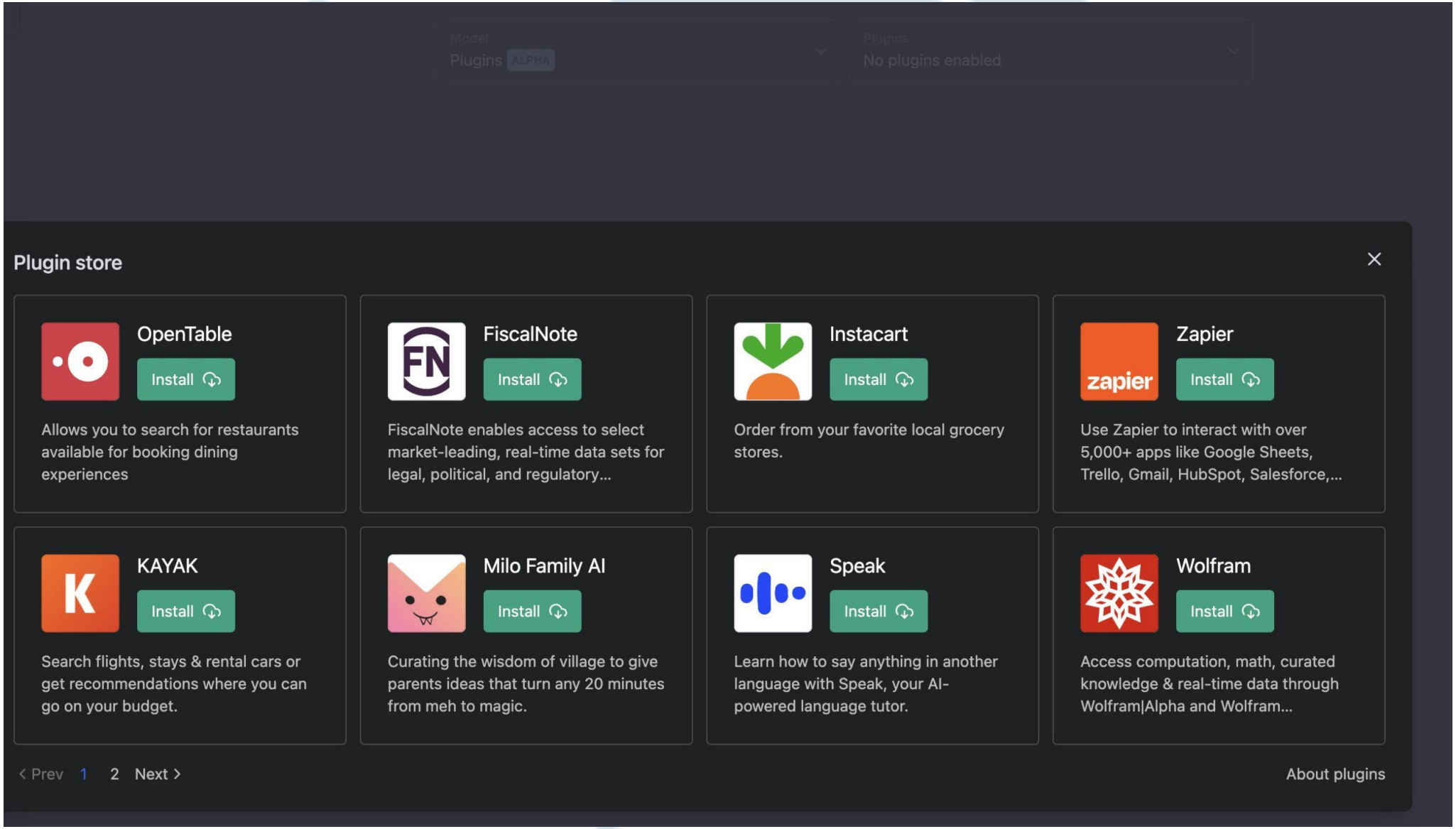


Plugins


Model
Plugins ALPHA
Plugins
No plugins enabled
Plugin store
OpenTable
Install
Allows you to search for restaurants available for booking dining experiences
FiscalNote
Install
FiscalNote enables access to select market-leading, real-time data sets for legal, political, and regulatory...
Instacart
Install
Order from your favorite local grocery stores.
Zapier
Install
Use Zapier to interact with over 5,000+ apps like Google Sheets, Trello, Gmail, HubSpot, Salesforce,...
KAYAK
Install
Search flights, stays & rental cars or get recommendations where you can go on your budget.
Milo Family AI
Install
Curating the wisdom of village to give parents ideas that turn any 20 minutes from meh to magic.
Speak
Install
Learn how to say anything in another language with Speak, your AI-powered language tutor.
Wolfram
Install
Access computation, math, curated knowledge & real-time data through Wolfram|Alpha and Wolfram...
Prev 1 2 Next
About plugins

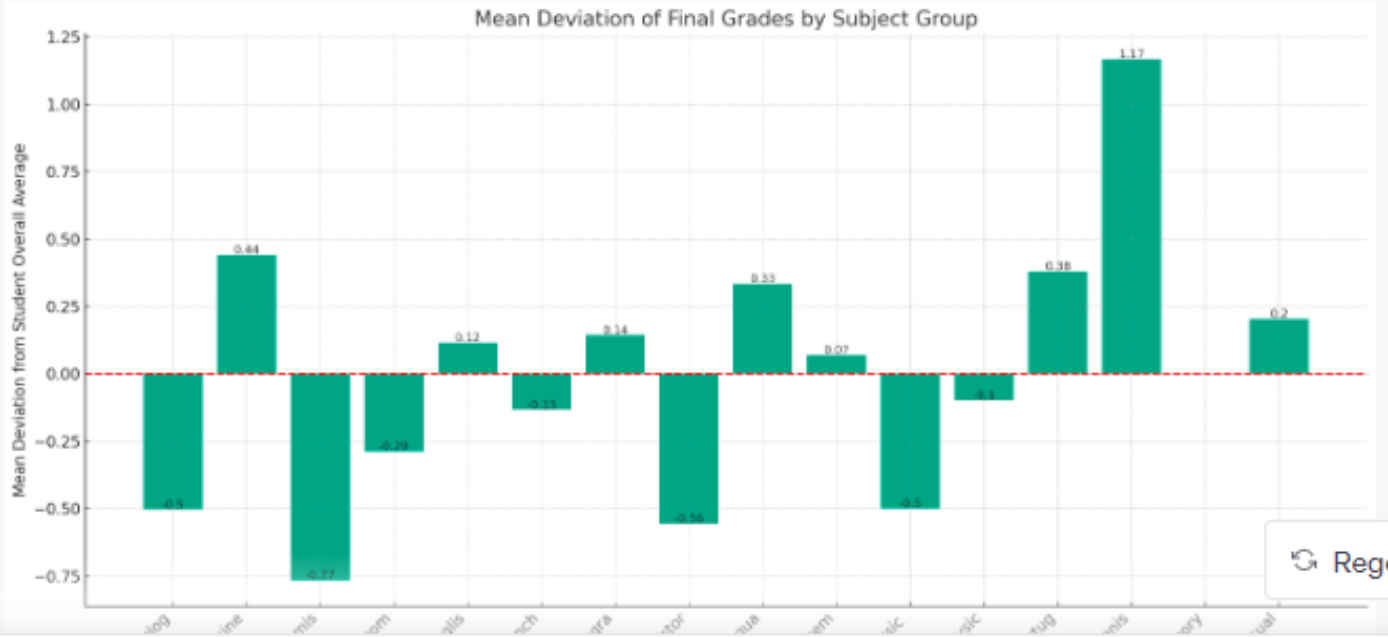
Data Analysis

Code Interpreter

4. Analyze and visualize the mean deviations to understand the relative performance in each subject.

Let's start by performing these steps:

Finished working Show work



Chat GPT & apps family

General Purpose Applications

- An All-Encompassing Expert in All Areas
- A Personalized Tutor
- Transcription
- Summarization

Chat GPT & apps family

General Purpose Applications

- Simplification
- Special Needs and Learning Difficulties
- Research
- Coding
- Images, Videos, and Presentations

Chat GPT & apps family

General Purpose Applications

- Text to Speech
- New Content Generation
- Conversations
- Impersonating Famous Characters
- Case study

Chat GPT & apps family

Applications for Reading

- Summarize Texts of Any Length
- Reading Comprehension Assistance
- Rewrite Texts for Different Age/Grade Levels
- Extract Main Ideas in Various Formats

Chat GPT & apps family

Applications for Reading

- Personalized Reading Plans
- Identify Entities and References
- Rewrite for Special Learning Needs
- Rewrite to Change Tone or Customize for Emotional Issues
- Perform Sentiment Analysis

Chat GPT & apps family

Applications for Reading

- Rewrite in the Style of Any Writer
- Text-to-Speech Conversion
- Change Literary Formats
- Rewrite with Alternative Endings or Plot Changes
- Analyze Text for Biases and Hidden Meanings

Chat GPT & apps family

Applications for Writing

- Generating Outlines for Any Topic or Idea
- Unlimited Text Generation in Various Styles and Lengths
- Text Rewriting for Improvement or Style Change
- Inclusion of References and Citations

Chat GPT & apps family

Applications for Writing

- Grammar and Style Correction
- Personalized Feedback
- Writer's Assistance
- Writing Templates
- Act as an Editor

Chat GPT & apps family

Applications for Writing

- On-the-Fly Research and Text Generation
- Text Improvement, Correction, and Customization

https://weevolvedlabs.org/tbsmenu/

Chat GPT & apps family

Mathematics & Science

- Problem solving and related tutoring.
- Real life applications of topics.
- Experiments – simulation.
- Problems that connect with other topics and/or real life situations.
- Simulated data, variations and errors.

Chat GPT & apps family

Mathematics & Science

- Data analysis through Code Interpreter.
- Forensics and other applications.
- Health science applications.
- Food & Nutrition – diets, nutritional info.
- Lab reports, image creation.
- Project feedback

Chat GPT & apps family

Social Sciences

- Interactive reenactment of events.
- Dialogue with historical figures.
- Interactive tours.
- Going back in time.
- Debates and interviews.

Chat GPT & apps family

Social Sciences

- Hypothetical situations.
- Case studies and problems.
- Simulated data for analysis.

Chat GPT & apps family

Foreign Languages

- Personalized reading materials.
- Dialogue and correction.
- Translation.
- Tour guides.
- Near future – oral conversations.

Chat GPT & apps family

Social Emotional Learning

- Stories and fictional scenarios.
- Dialogues.
- Icebreakers and activities related to topics.
- Themed meditations.
- Simulated mediation and conflict resolution.

Chat GPT & apps family

Technology

- Code generation.
- Webpage design.
- Debugging and code checking.

Ethical and social implications

AI Image Generation

- Is it Art?
- Concerns for digital art industry.

Ethical and social implications

AI Image Generation

- Misuse and Misrepresentation of AI-Generated Images
- Privacy and Consent Concerns
- Deepfakes and Non-consensual Content Issues
- Bias and Stereotypes in AI Image Generation

Ethical and social implications

AI Image Generation

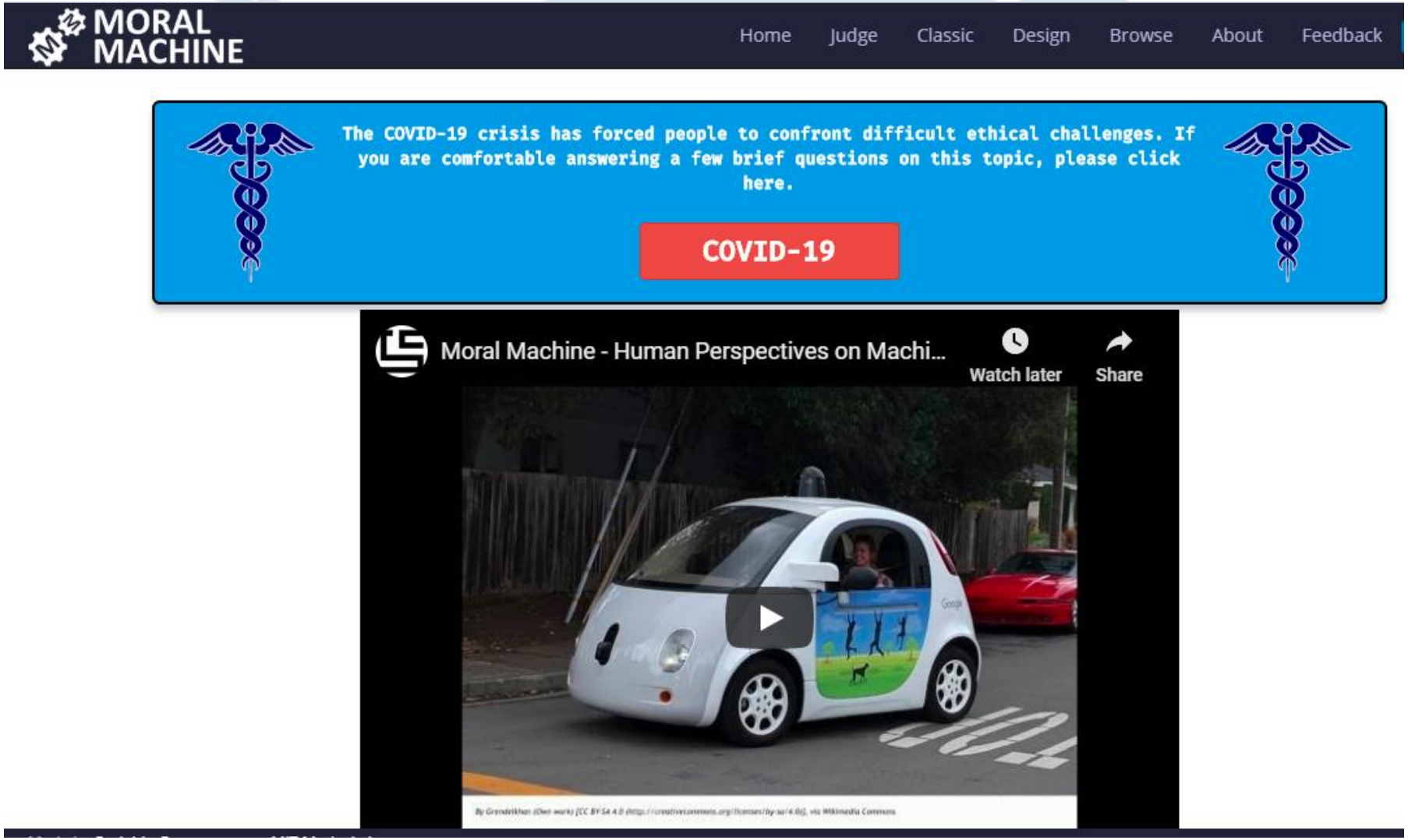
- Ownership and Intellectual Property Rights Challenges
- Authenticity and Trust Concerns in Visual Media
- Psychological and Emotional Impact of AI-Generated

Ethical and social implications

AI and advanced tech applications

- Unaddressed important implications of tech advances.
- Students are generally unaware of some of the deeper issues related to technology.
- These range from ethical dilemmas and deep fakes to privacy issues.

MIT Moral Machine



My Goodness MIT

Welcome to MyGoodness!

There are over one million registered charities in the United States alone, and many more worldwide. How do you choose among them?

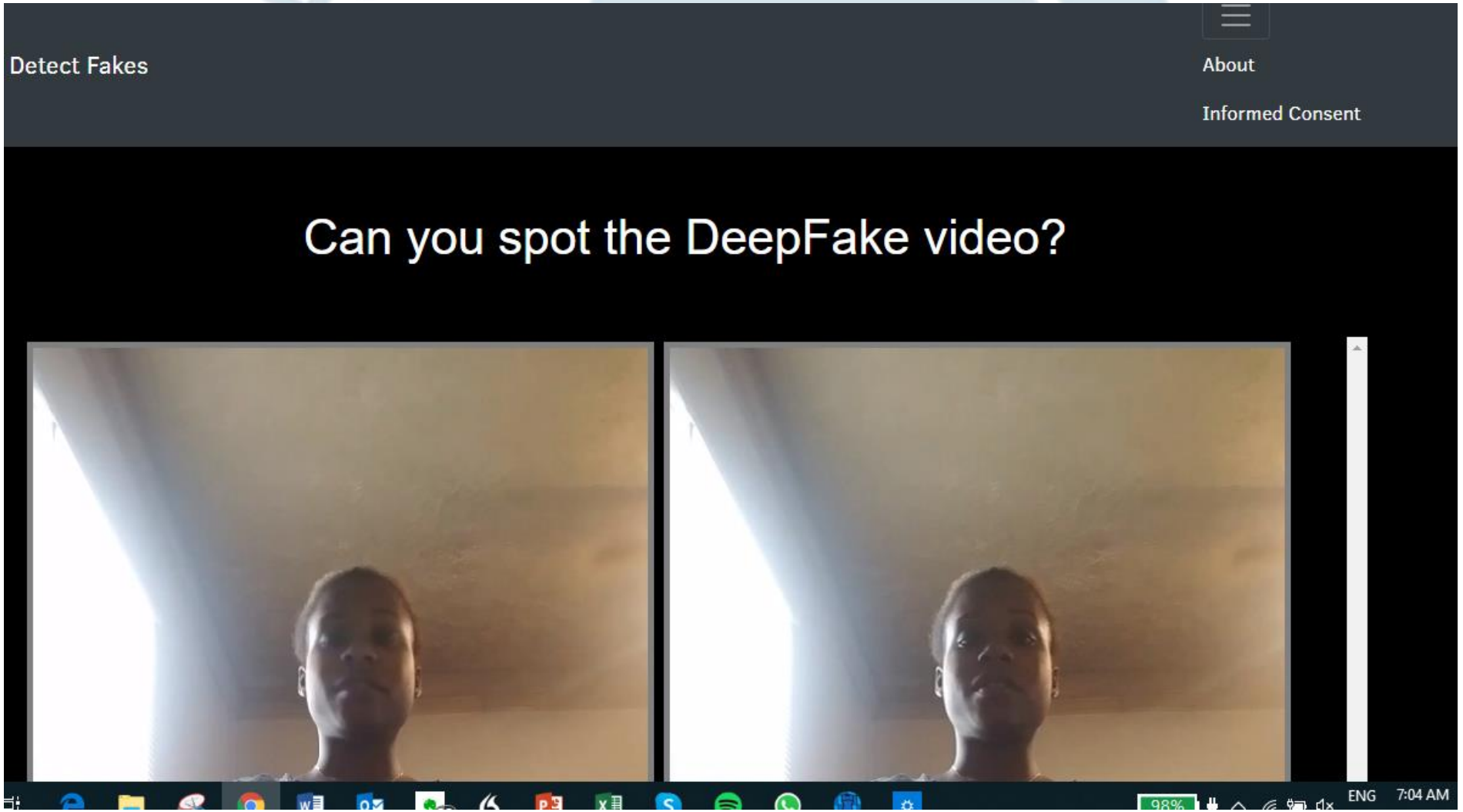
MyGoodness is a simple game that helps you understand how you give. In the game, you will make 10 giving decisions. Each decision is between two choices, and you tell us which you prefer.

At the end of the game, we give you a summary of your 'goodness' and how it compares to others. You can share that feedback with whomever you would like.

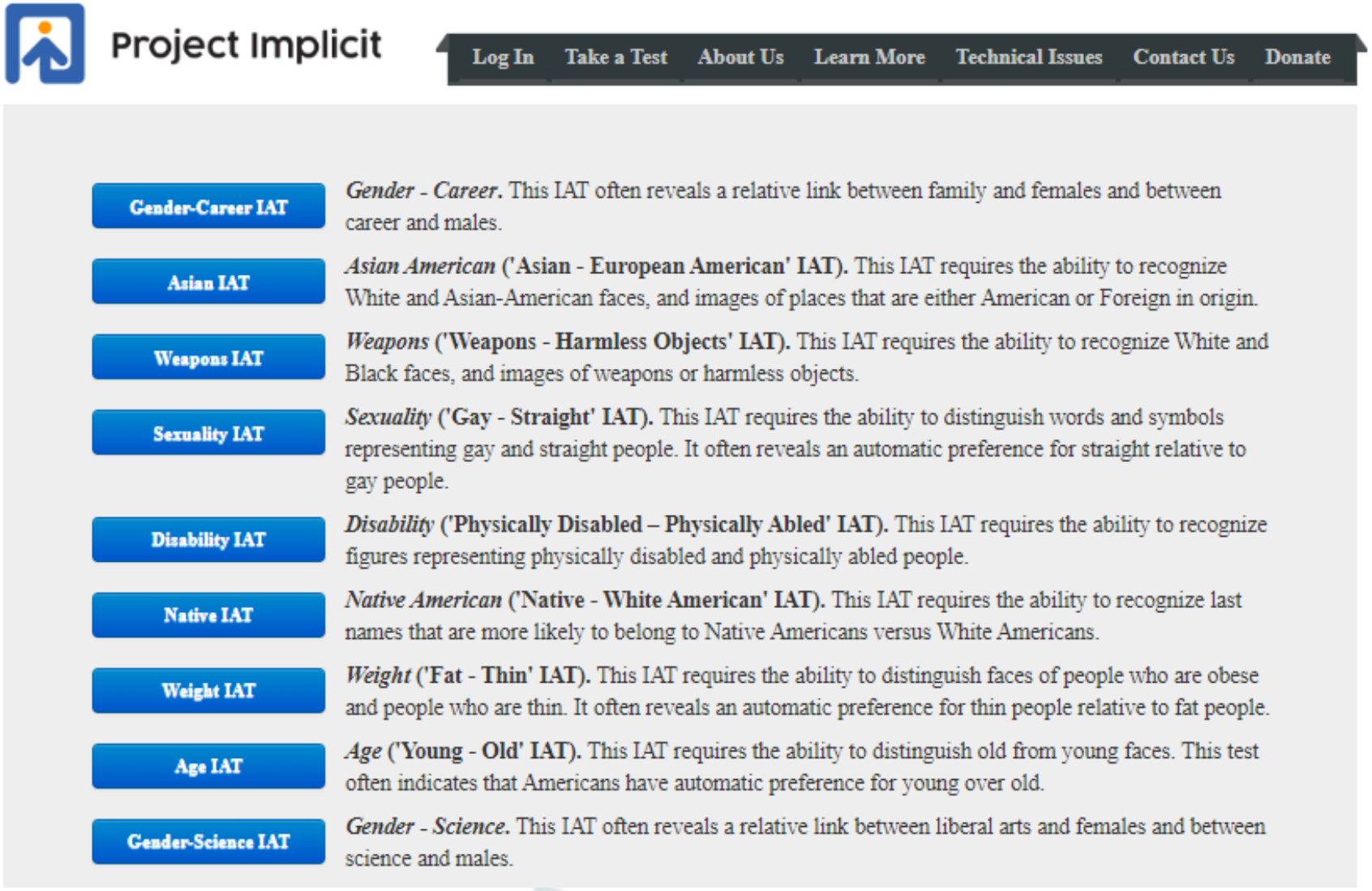
Start Game!

View instructions (recommended)

MIT Detect Fakes



Harvard Project Implicit



"Terrific. . . . Art and science meet an engaged mind and the friction produces real fire." —*The New Yorker*

The Most Human Human

What Artificial Intelligence Teaches Us About Being Alive

Brian Christian

Conclusions – Discussion

This is just the beginning

- Chat GPT elevates the threshold of cognitive skills at every level.
- What constitutes cheating?
- Different standards for adults and students?

Conclusions - Discussion

This is just the beginning

- Which learning / cognitive skills do we need to build up to?
- How are they learned?
- Reassessing assessment, including international exams.
- Current events post Sept 2021 – limitations

Conclusions - Discussion

Implications

- Redefine cognitive skills per age level.
- Closed tech sessions – oral discussions – not pen and paper.
- Pre-Chat GPT analysis.
- Fact checking and verification.
- Creative tasks.

Conclusions - Discussion

Risks

- Some cognitive skills at risk.
  - Reading comprehension.
  - Summarization.
  - Breaking down a real life problem.
- Chat GPT outperforming students at many age levels.

Conclusions – Discussion

Benefits

- We can learn a whole lot more.
- Very significant step towards democratization of knowledge.
- Higher threshold for learning skills.
- AI unleashed for human good.

What´s next?

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