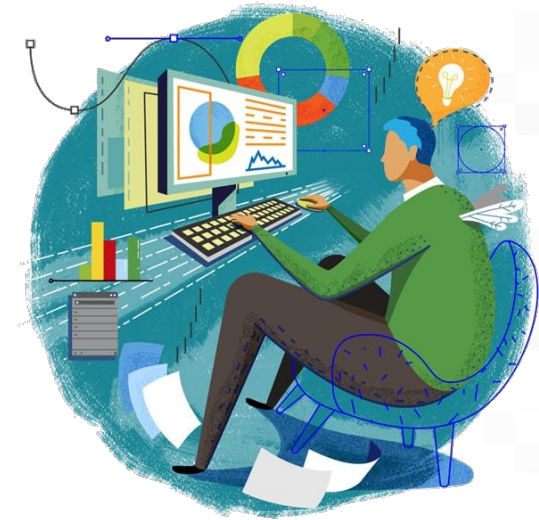


# AI in Education

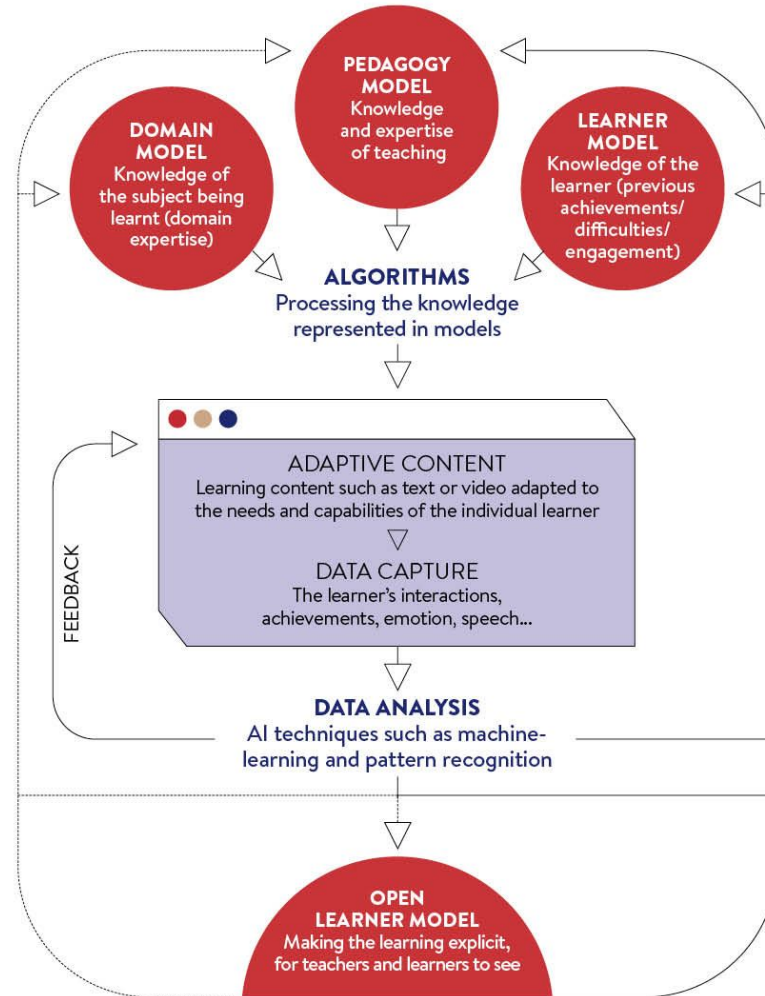
Teaching and Learning with Artificial Intelligence

## AI in Education (AIEd)

- The application of AI in education has been a research subject for almost 30 years, but much of the opportunities and spotlights happens after the boom of computational power in the recent years
- AIEd is making tremendous advancements in four areas:
  - Student profiling and prediction
  - Student assessment and evaluation
  - Adaptive systems and personalisation
  - Intelligent tutoring systems



## How does AI fit into education?



Source:  
Pearson, 2016  
<https://www.raconteur.net/hr/artificial-intelligence-is-the-next-giant-leap-in-education>

## Education Application 1: Smart Tutoring

- Smart tutoring systems help students by giving them assistance before they fall behind and become disinterested
- Insights from data will help identify which area the students are struggling
- Thus, educators can dedicate more resources to rectify the problem early on



Sources: <https://elearningindustry.com/ai-is-changing-the-education-industry-5-ways>,  
<https://thenextweb.com/artificial-intelligence/2017/03/13/how-artificial-intelligence-enhances-education/>,  
<https://wire19.com/real-life-examples-of-ai-in-education/>

## Smart Tutoring


- **Third Space Learning**, which is an online math tutoring platform, uses a system which will detect if a student's reaction to a concept follows a pattern of misunderstanding
- This system helps teachers to address the misconception early and prevent issues down the road
- Another company, **Brainly** is using ML algorithms to filter spam and low quality content in order to deliver quality services to students
- In addition, Brainly platform makes friend suggestions based on the areas which the student needs help



**THIRD SPACE**  
LEARNING



## Education Application 2: Personalised Learning









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2017

# How Artificial Intelligence is Boosting Personalization in Higher Education

Artificial intelligence can aid educators in providing support to individual students in large classes.

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by [David Hutchins](#)

David Hutchins is vice president of higher education and K–12 education for CDW·G, a leading technology provider to government and education.

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▶ **LISTEN** 04:28

Personalized learning, which tailors educational content to the unique needs of individual students, has become a huge component of K–12 education. A growing number of college educators are embracing the trend, taking advantage of data analytics and artificial intelligence to deliver just-right, just-in-time learning to their students.

Source:  
<https://edtechmagazine.com/higher/article/2017/11/ai-boosts-personalized-learning-higher-education>  
<https://bdtechtalks.com/2017/03/09/artificial-intelligence-education-edtech/>

## Making learning more personal

- Up until now, students undergo standardised classes which are laid out in the curriculum structure
- Standardisation happens due to the aim to generalise education for individuals, aiming to cater for various needs of each individual
- However, each individual is different - some are interested in geology, but some just find geology boring



Source: <https://elearningindustry.com/ai-is-changing-the-education-industry-5-ways>

## Making learning more personal

- With personalised learning, students can get targeted and customised responses from the teachers and improve accordingly
- The pattern recognition capability of AI can address this gap by matching course materials based on personal interest and learning style of each individual





# AI in Education

Grading Essays

## Education Application 3: Grading Essays



Source:  
<http://www.digitaljournal.com/tech-and-science/technology/artificial-intelligence-used-to-mark-exam-papers/article/523361>

# Grading Essays

[South China Morning Post](#)[News](#)[Comment](#)[Lifestyle](#)[More +](#)[Coronavirus](#)[SIGN IN/UP](#)

China / Society

## China's schools are quietly using AI to mark students' essays ... but do the robots make the grade?

Almost a quarter of the country's schools are testing 'thinking' technology designed to assess everything from an essay's style and structure to its logic and remove human error



**Stephen Chen**

Published: 8:01pm, 27 May, 2018 ▾

Why you can trust SCMP

Source:

<https://www.scmp.com/news/china/society/article/2147833/chinas-schools-are-quietly-using-ai-mark-students-essays-do>

# Grading Essays

- Schools in China have been testing out systems which grades essay work
- The system is able to interpret general logic and meaning of the text, thus undertake human-like judgement in assessing an essay's quality
- Subsequently, the system can assign a grade and provide recommendations of improvement, such as writing style, sentence structure, and overall theme
- In addition, if the essay is trailing off topic, the system is able to detect it and mark it down
- The system assists teachers and reduce the time spent by teachers marking essays, while removing marking inconsistency altogether

Sources:

<http://www.digitaljournal.com/tech-and-science/technology/artificial-intelligence-used-to-mark-exam-papers/article/523361>

<https://elearningindustry.com/ai-is-changing-the-education-industry-5-ways>,

[www.phdcomics.com](http://www.phdcomics.com) Title: "We're all doomed" - originally published 2/6/2008



# Grading Essays



## How Does it Work?

- The software uses deep learning algorithms to self-compare its outcomes from human teachers' scores
- By comparing repeatedly, the software learns to grade essays with minimal difference from a human teacher
- Moreover, the software can take suggestions and comments from human teachers into account, enabling it to learn better and faster