

SCHOOL OF
DESIGN AND
CREATIVE
ARTS

AI: The Future

Presented by

Georgina Cosma, Nikki Clark, Paul Russell



Loughborough
University

Presenters

Professor Georgina Cosma

Academic Position

- Professor of AI & Data Science, Loughborough University
- PhD in Computer Science, University of Warwick (2008)

Research Focus

- Natural Language Processing (LLMs)
- Information retrieval (text, multi-modal searching)
- Information processing and modelling
- Continual machine learning and unlearning
- Responsible AI innovation (bias management and mitigation)

Contact:

Georgina Cosma
g.cosma@lboro.ac.uk
[@gcosma1](https://www.cosmos-ai.com)
www.cosmos-ai.com



Professor of AI & Data Science

Professor Georgina Cosma

Leading innovative research in Neural Information Retrieval, Computational Intelligence, and Responsible AI at Loughborough University.

[🔗](#) [📄](#) [📧](#) [✉️](#)



About Me

I am Professor of AI & Data Science at Loughborough University, where I lead the Neural Information Processing, Retrieval & Modelling research group. My research focuses on developing AI systems that are not only technically advanced but also ethical, fair, and beneficial to society.

My academic journey began with a PhD in Computer Science from the University of Warwick, specialising in intelligent information retrieval. Since then, I have built a research programme that spans neural information retrieval, computational intelligence, and responsible AI development.

In addition to my research, I teach the Natural Language Processing (NLP) module to MSc Artificial Intelligence and MSc Advanced Computer Science students, focusing on foundational and state-of-the-art topics including vector space models, information retrieval, large language models (LLMs), and their applications.

What drives my research is the conviction that AI must serve humanity responsibly. I work on projects that address real societal challenges—from healthcare inequalities to supporting vulnerable populations.

Academic Excellence
Leading research group with distinguished publication record

Grant Leadership
Principal and co-investigator on externally funded projects

Social Impact
Addressing healthcare inequalities through responsible AI

Community Service
Active reviewer for EPSRC and other funding bodies; Associate Editor of Elsevier Pattern Recognition

Government Partnerships
Collaborations with NHS trusts and local authorities

Industry Innovation
Strategic partnerships with industry leaders

Presenters

Dr Nikki Clark



Academic Position

- Senior Lecturer, School of Design & Creative Arts
- PhD in Sustainable Packaging Design, Loughborough University (2021)

Research Focus

- Packaging Service System Design for CE
- Consumer behaviour with packaging

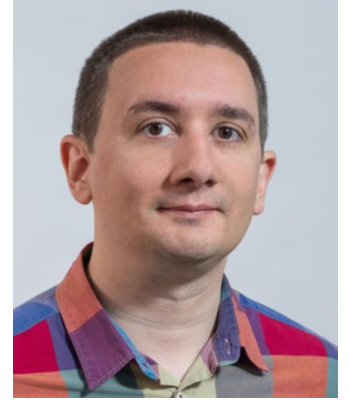
Contact:

Nikki Clark

n.clark@lboro.ac.uk



Paul Russell



Academic Position

- Teaching Fellow in Design, School of School of Design & Creative Arts
- 9 years University teaching

Research Focus

- Generative AI for Design
- CAD and Computer Graphics

Contact:

Paul Russell

p.j.russell@lboro.ac.uk

Generative AI

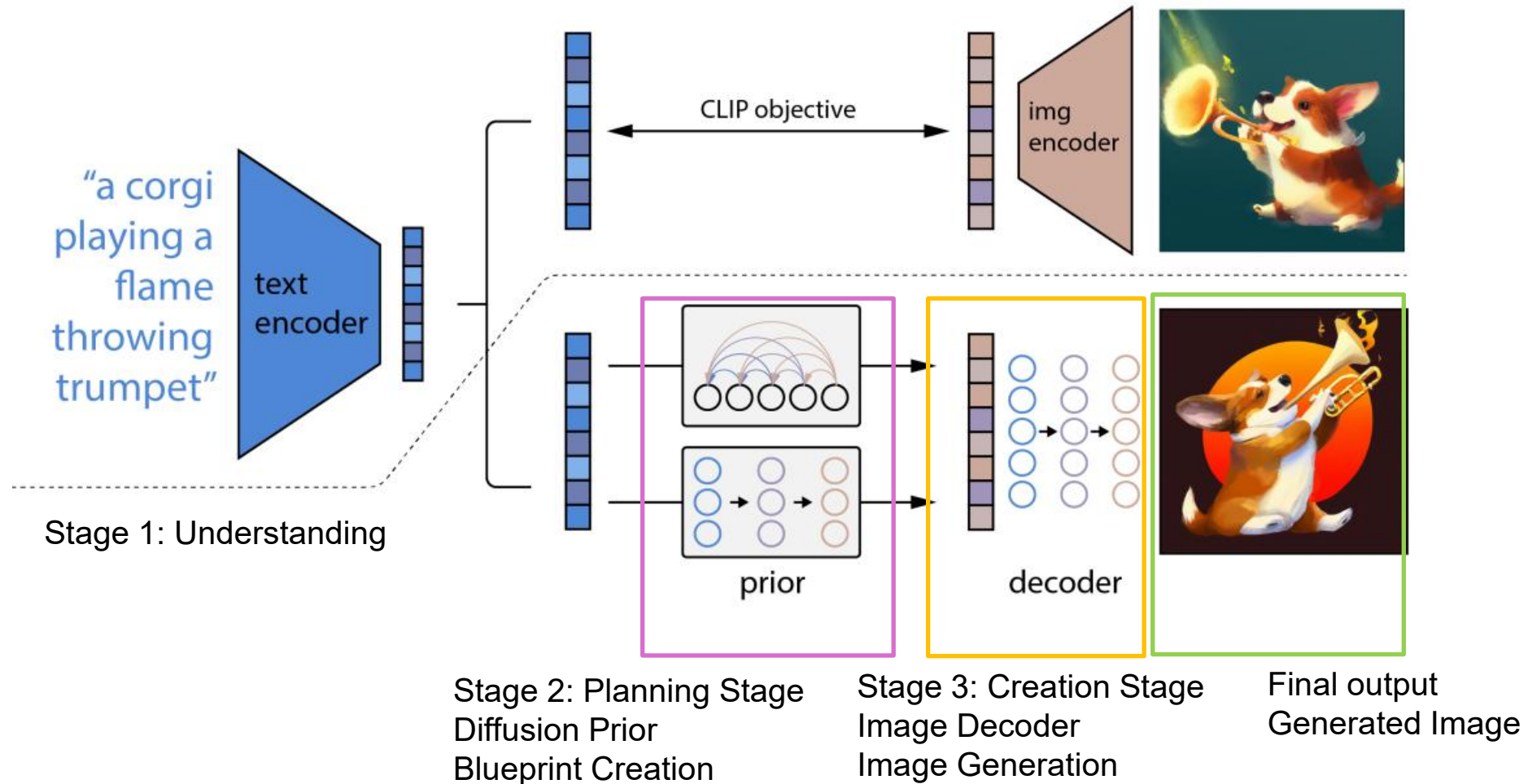


What is Generative AI?

Generative AI learns from past data to create new content - like text, images, or designs – by mixing together patterns it has seen before.



What Happens When You Ask DALL-E for an Image?



Dear DALL-E...

“Design an ultra-premium, luxury aluminium fizzy drink can for affluent, sophisticated British consumers. The can should be 330ml standard size with an elegant, upscale design that would suit high-end establishments, luxury hotels, and exclusive events”



DALL·E

By ChatGPT 

OpenAI's legacy image generation model. For our latest model, ask ChatGPT to create an image in the main chat.

+ Impressionism

+ Muted

+ 3D Wireframe



Ask anything



Generated or Real?



"Why pay a designer when you can just prompt AI?"

DESIGN WITH IMAGES FROM DALL-E 2

Generated or Real?



DESIGN WITH IMAGES FROM DALL-E 2





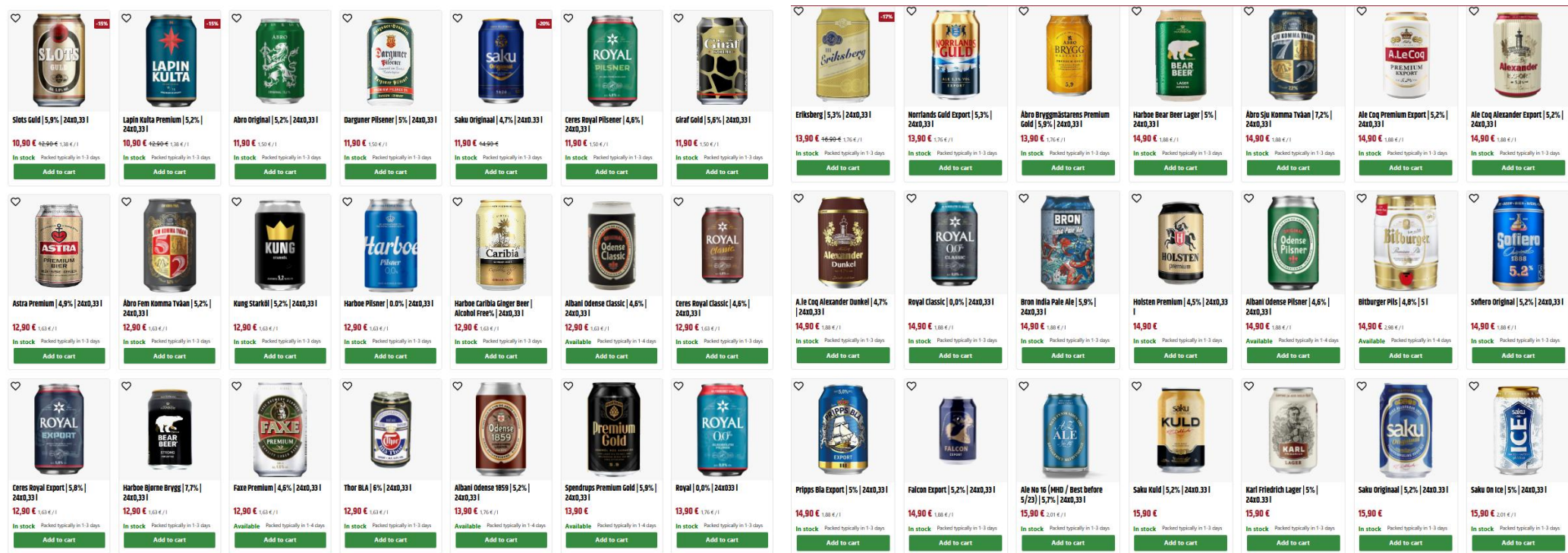
"Why pay a designer when you can just prompt AI?"

DESIGN WITH IMAGES FROM DALL-E 2

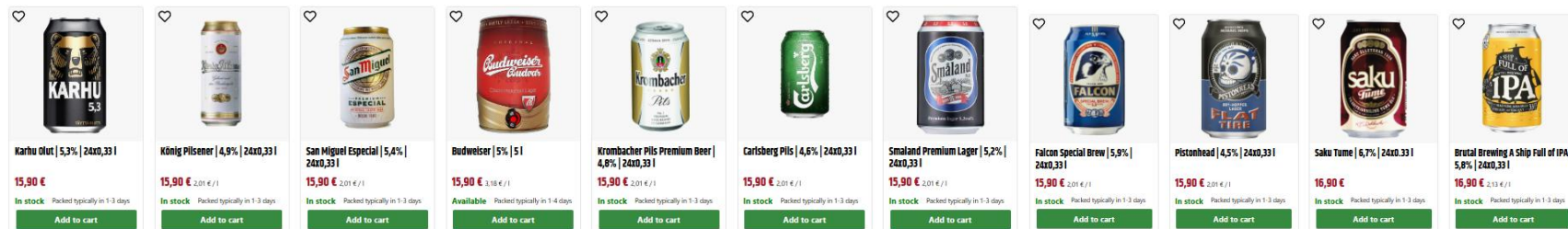
Generated or Real?



DESIGN WITH IMAGES FROM DALL-E 2



Millions of designs created by others!



"Why pay a designer when you can just prompt AI?"

Making Design Versions

AI can quickly make different versions of the same design using your brand colours and style.

But it doesn't create truly new ideas - it just mixes up existing ones.

The truth: It copies and changes existing designs rather than creating something completely new



Quality/Consistency Issues

Using Your Brand Style

Good at copying your brand colours and fonts across different formats.

But it doesn't understand what your brand really means or how customers feel about it.

Missing: Can't understand your brand story or what matters to your customers



Legal/Risk Concerns

AI

Getty Images is suing the creators of AI art tool Stable Diffusion for scraping its content



An image created by Stable Diffusion showing a recreation of Getty Images' watermark.
Image: The Verge / Stable Diffusion

/ Getty Images claims Stability AI 'unlawfully' scraped millions of images from its site. It's a significant escalation in the developing legal battles between generative AI firms and content creators.

by **James Vincent**
Jan 17, 2023, 10:30 AM GMT

[Link](#) [Facebook](#) [Twitter](#) [Comments \(18 New\)](#)

Reuters

Getty argues its landmark UK copyright case does not threaten AI

LONDON, June 9 (Reuters) - Getty Images' landmark copyright lawsuit against artificial intelligence company Stability AI began at London's...

1 month ago

The Independent

Disney and Universal sue Midjourney AI for copyright infringement

Disney and Universal have filed a copyright lawsuit against popular artificial intelligence image-generator Midjourney on Wednesday....

4 weeks ago

Forbes

Generative AI Is A Crisis For Copyright Law

The ambiguity surrounding AI-generated works' authorship and ownership has led to numerous lawsuits against AI companies.

Apr 2025

Nation Thailand

Disney and Comcast sue for copyright infringement in AI-generated content

The lawsuit filed by The Walt Disney Company and Comcast is the latest in a series of legal battles between generative artificial intelligence firms and content creators.

Bloomberg

Disney and Comcast sue for copyright infringement in AI-generated content

The Hollywood studios' complaint alleges that the generative artificial intelligence firm has scraped millions of images from their websites without permission.

CNN

Disney and Universal sue Midjourney, claiming copyright infringement

Disney and Universal are suing Midjourney, claiming copyright infringement.

4 weeks ago

The Guardian

Meta wins AI copyright lawsuit as US judge rules against authors

Writers accused Facebook owner of breach over its use of books without permission to train its AI system.

2 weeks ago

Copyright
Stability AI

Judge pares down artists' AI copyright lawsuit against Midjourney, Stability AI

By Blake Brittain

October 30, 2023 9:53 PM GMT · Updated October 31, 2023

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FILE PHOTO: AI (Artificial Intelligence) letters are placed on computer motherboard in this illustration taken June 23, 2023. REUTERS/Dado Ruvic/Illustration/File Photo [Purchase Licensing Rights](#)



But what does this mean for teaching AI to design students?

Generative AI Student Guidance

Innovation is good

The use of generative AI services, such as ChatGPT and Midjourney, is (mostly) permitted.

However, student's must be honest, open and transparent about their use of AI.

MAGAZINE DESIGN WITH IMAGES FROM DALL-E 2



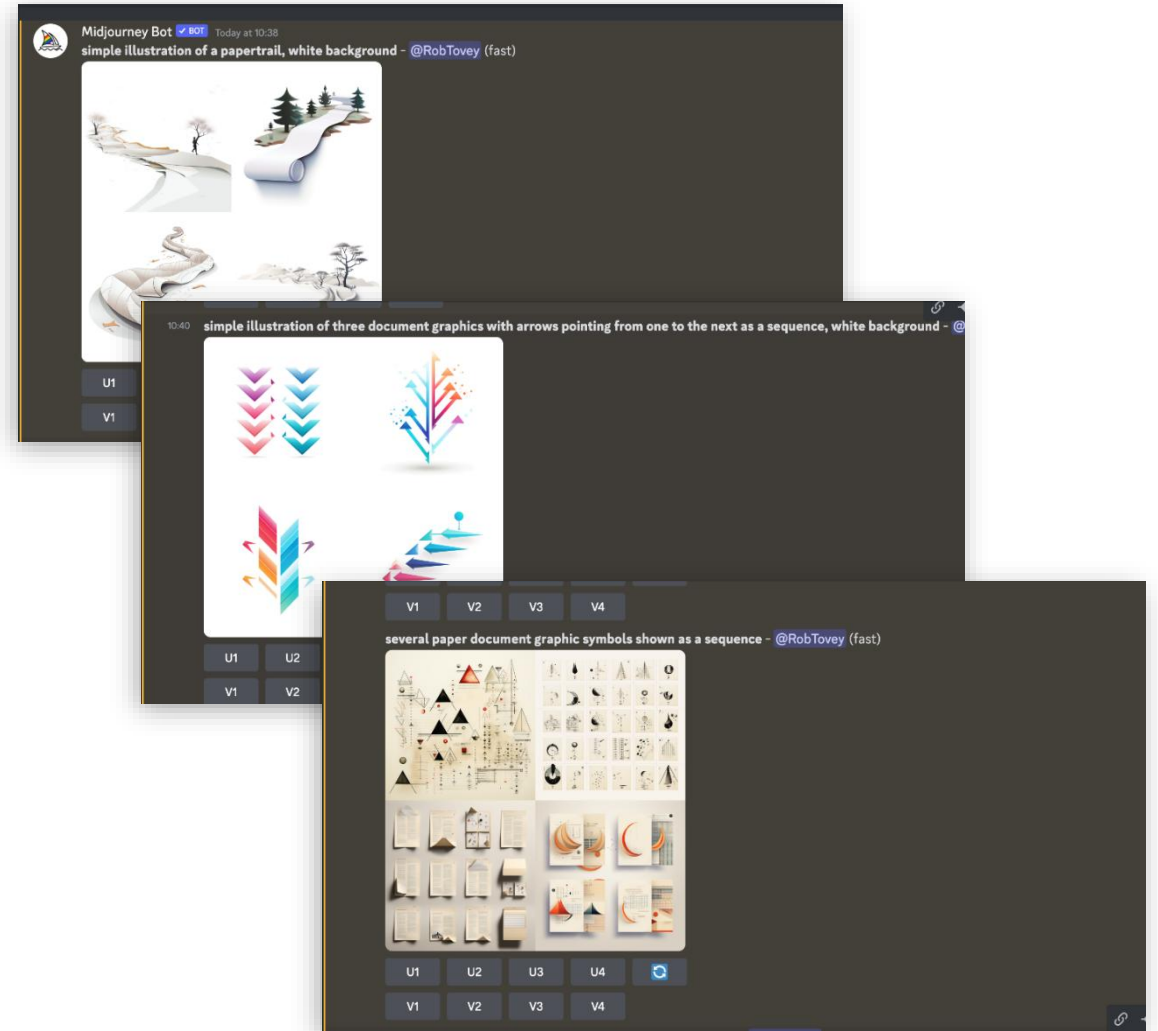
Be clear about usage

Evidence of process

Effective use of generative AI technology involves trial and error, reflective cycles, and critical judgement.

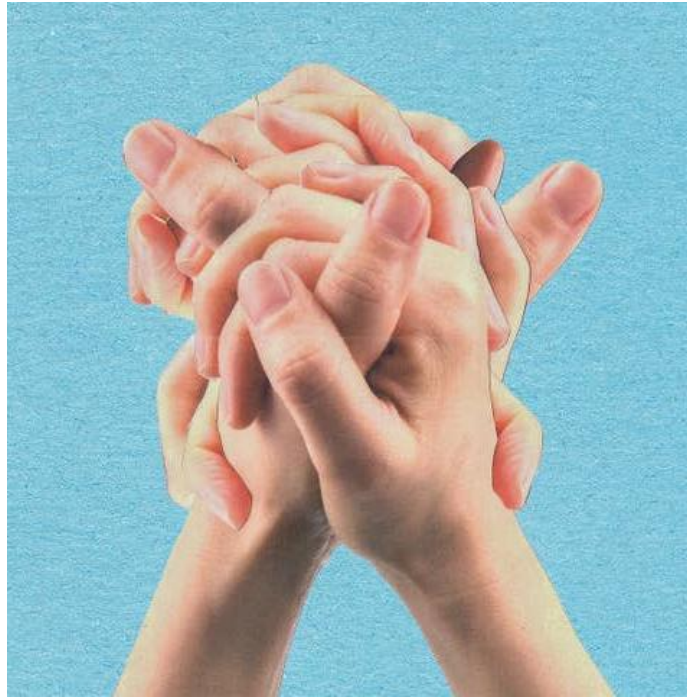
Students must document any AI usage, using screengrabs to evidence development.

This helps us evaluate the students' *intellectual contribution*.



AI makes mistakes and reinforces stereotypes

Can struggle with human anatomy, or not represent bodily diversity



MADDIE ABUYUAN / BUZZFEED NEWS (2023)



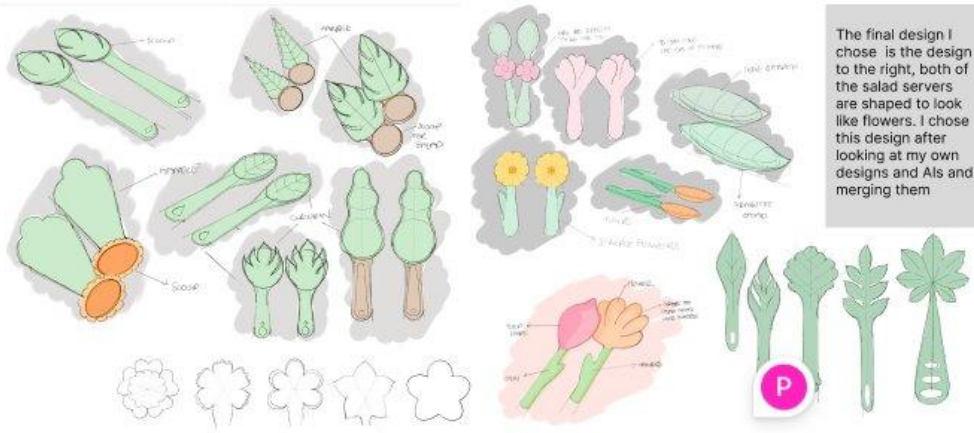
Midjourney results give only young, Caucasian, and female images when prompted for an image of "a nurse"

Teaching incorporating AI

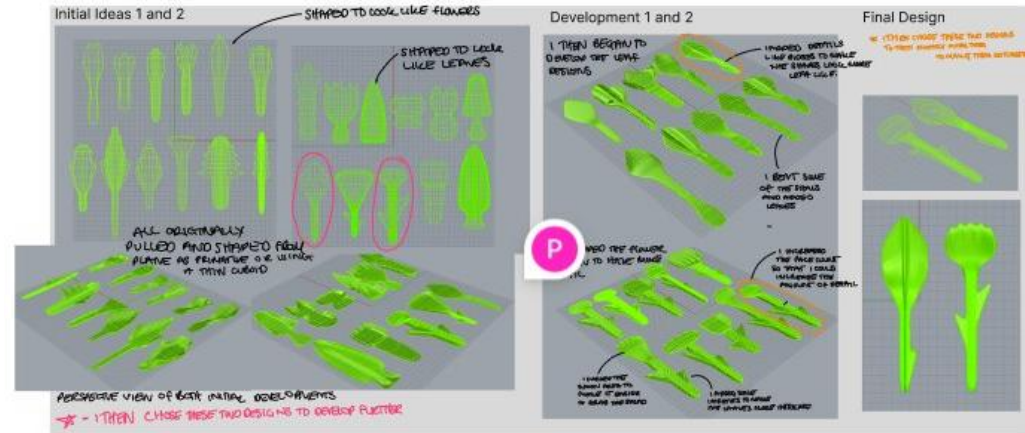
INSPIRATIONAL IMAGES - AI



SKETCHES



RHINO SUB-D NURBS MODELLING



FINAL-DESIGN

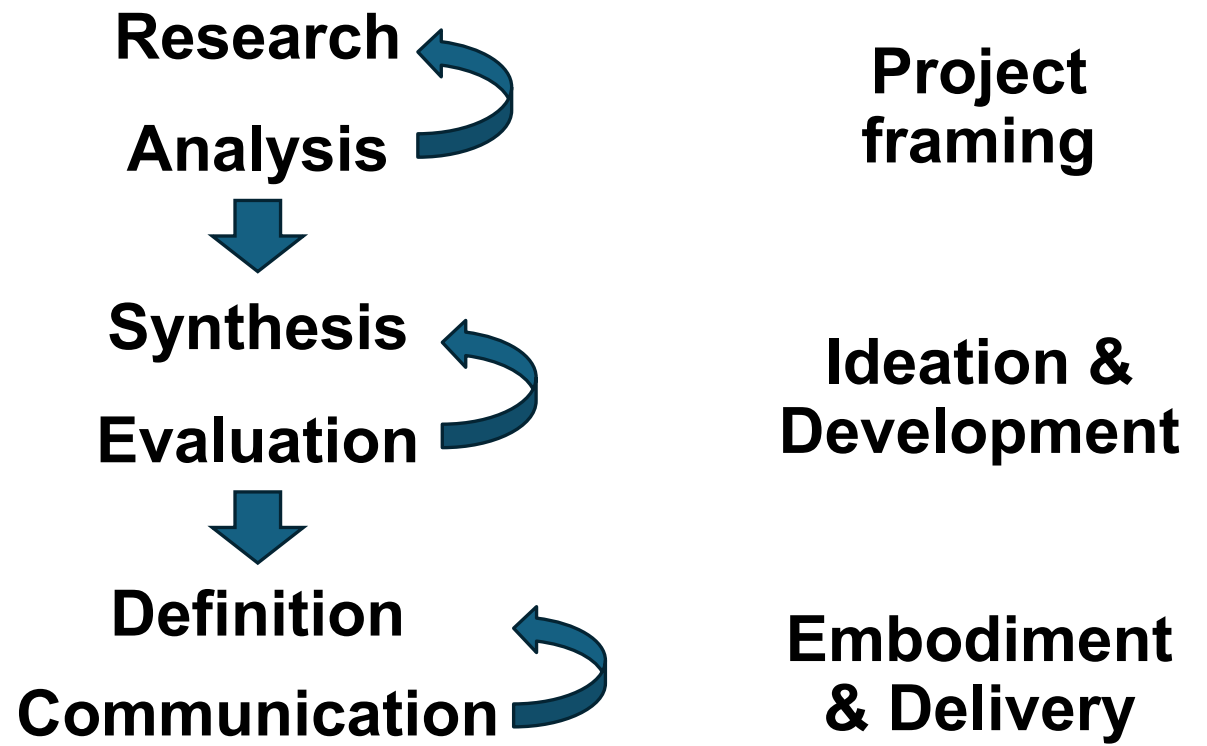


AI RENDER



**Focus is on
framing and
pitching a concept**

**Not final high
polished design
outcomes (yet!)**



CONCEPT 1- SHARED MOMENTS APP

AI Example: Storyboard (BA Design)

ChatGPT generated
Prompting it to create images in a storyboard cartoon style. I would say prompts such as *'create a cartoon style image of a guy looking sad in his bed.'* For each following image I prompted it to follow the same style.

Isabel Babawale, 2024



Jake, a 22-year-old student, feels stuck in a routine with his friends. Every hangout is the same: pub, small talk, and nothing memorable.



Jake discovers the "Shared Moments App" while scrolling on his phone. He downloads it and sends an activity invite to his friends: "Cook dinner together and each person brings one ingredient that reminds them of their childhood"



Jake and his friends gather to cook. They laugh at the strange ingredients and attempt to make a meal.



The group eats their disaster of a meal together. And the app prompts them to share what the ingredient they bought means to them. For the first time in a while Jake feels genuinely connected to his friends.

© Isabel Babawale 2024



They upload their photos to the app's shared album. The app suggests their next challenge: "Go on a midnight hike"



Jake reflects on how their hangouts have changed. The app has helped bring excitement back into his friendships, and even the friends who usually now enjoys planning new activities

chatgpt generated: I used chatgpt by prompting it to create images in a storyboard cartoon style. I would say prompts such as create a cartoon style image of a guy looking sad in his bed. For each following image I prompted it to follow the same style.

AI Example: Final Solution (MA UX & Service Design)

DALL E (Open AI) generated
Prompting it to create images to
create an ice cream style van, with
solar panels, which is collecting
small electronic objects from a
community.

TEAM HIBE, 2024



What is Agentic AI?

Agentic AI refers to autonomous artificial intelligence systems that can independently plan, execute, and adapt their actions to achieve specific goals.

Unlike traditional AI that responds to prompts, agentic AI can take initiative, make decisions, use tools, interact with systems, and perform complex multi-step tasks without constant human supervision.

AI Example: Major Project (BA Design)

Agentic AI to improve financial literacy of the younger generation.

Used **n8n** to test the agents and their prompts to see if they would function correctly.

Mapped worst outcomes of the AI agents to mitigate risks within the design.

Nathan Jesani-Lee, 2025

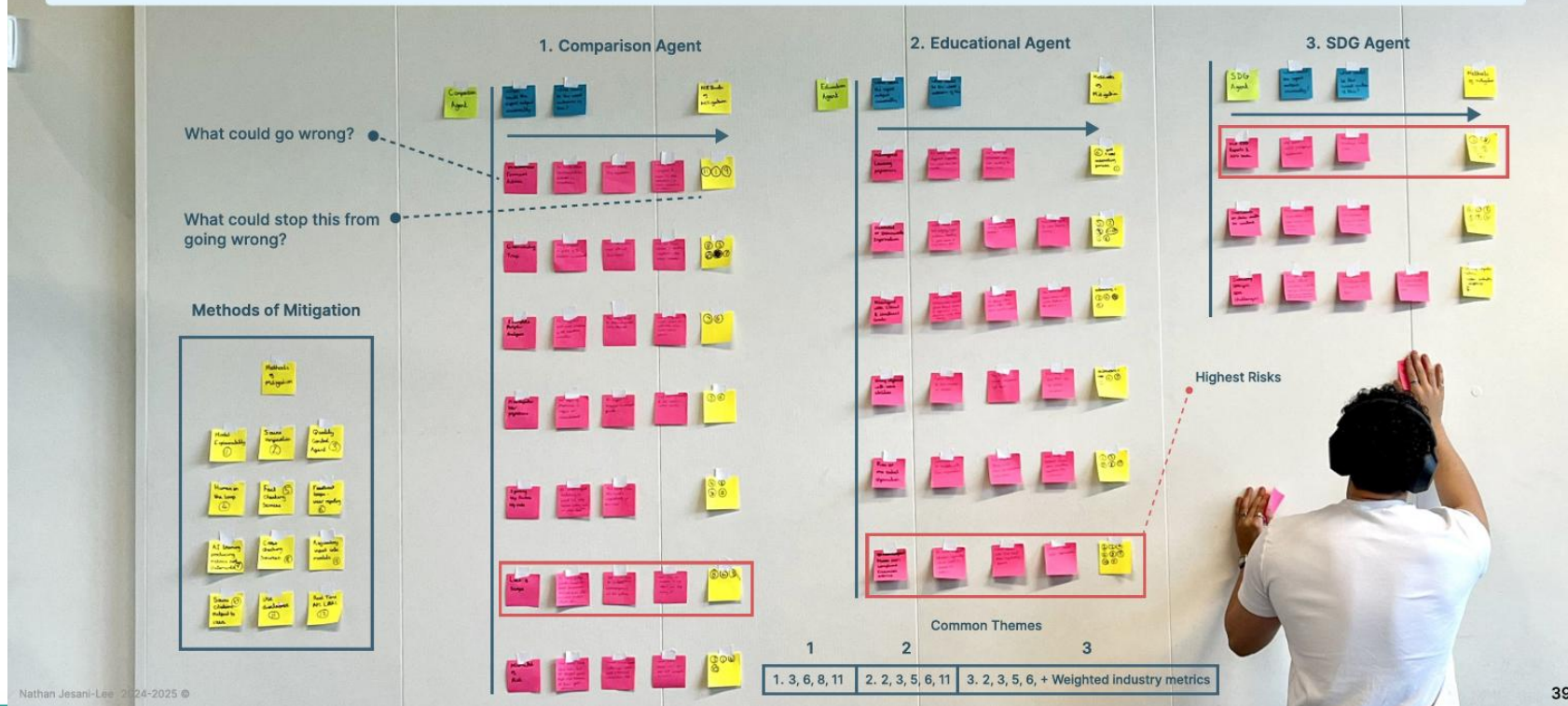
Adversarial Prototyping - AI Agent Damage Control

Review of Prototyping

Answering Q1, Q2 - I broke down the potential worst outcomes of the AI agents. This led me to understand where the process began so I would know how to mitigate it. The methods of mitigation were placed on the side which I then listed at the end of each potential bad outcome if it could be used to stop it happening. If the methods of mitigation didn't cover it or I missed something, I would write it on the post it note. I then used the yellow post its to find the themes across the agents of the best methods for mitigation.

Next Steps

I will test this with a peer to make sure I have not missed anything important. I think this is an important stage to get right as these systems cannot go wrong. The higher risk outcomes from each agent has been boxed in red which is what I will take forward and mitigate.



Large Language Models (LLMs)

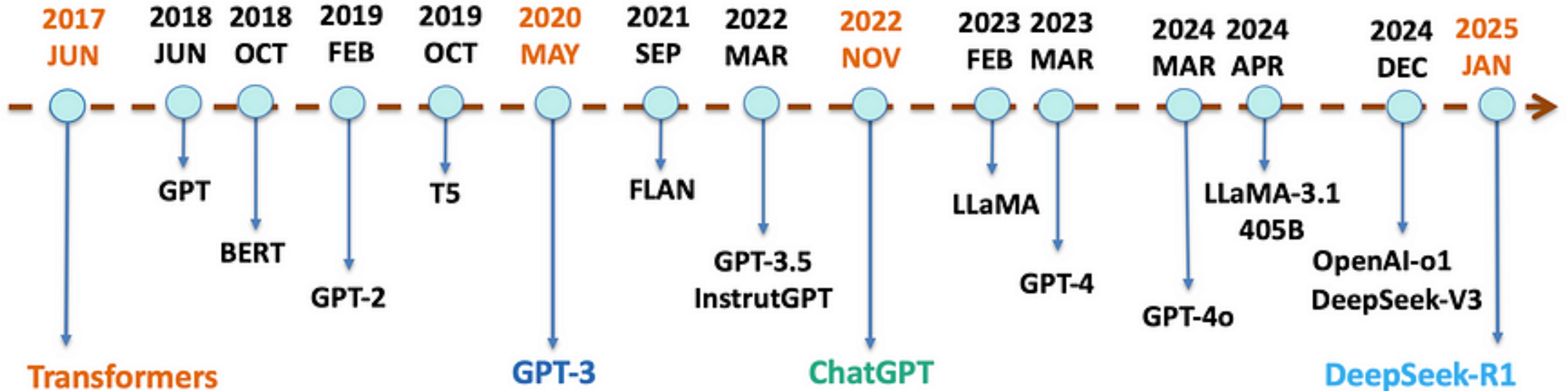
Beyond Visuals: AI That Writes and Reasons

What are Large Language Models?

Large Language Models process massive amounts of text to understand language patterns.

This enables them to have conversations, answer questions, write content, and reason through complex problems.

Large Language Models(LLMs)



2025 FEB - GPT-4.5 (Orion) - Mistral Small 3

2025 MAR - Gemini 2.5 Pro

2025 APR - OpenAI o3 - o4-mini - GPT-4.1

2025 MAY - DeepSeek-V3 R1-0528 - Claude 4 (3.7 Sonnet) - Grok 3

Large Language Models(LLMs)

Customer Service Responses

Question: "How should I explain to customers that our packaging is recyclable?"

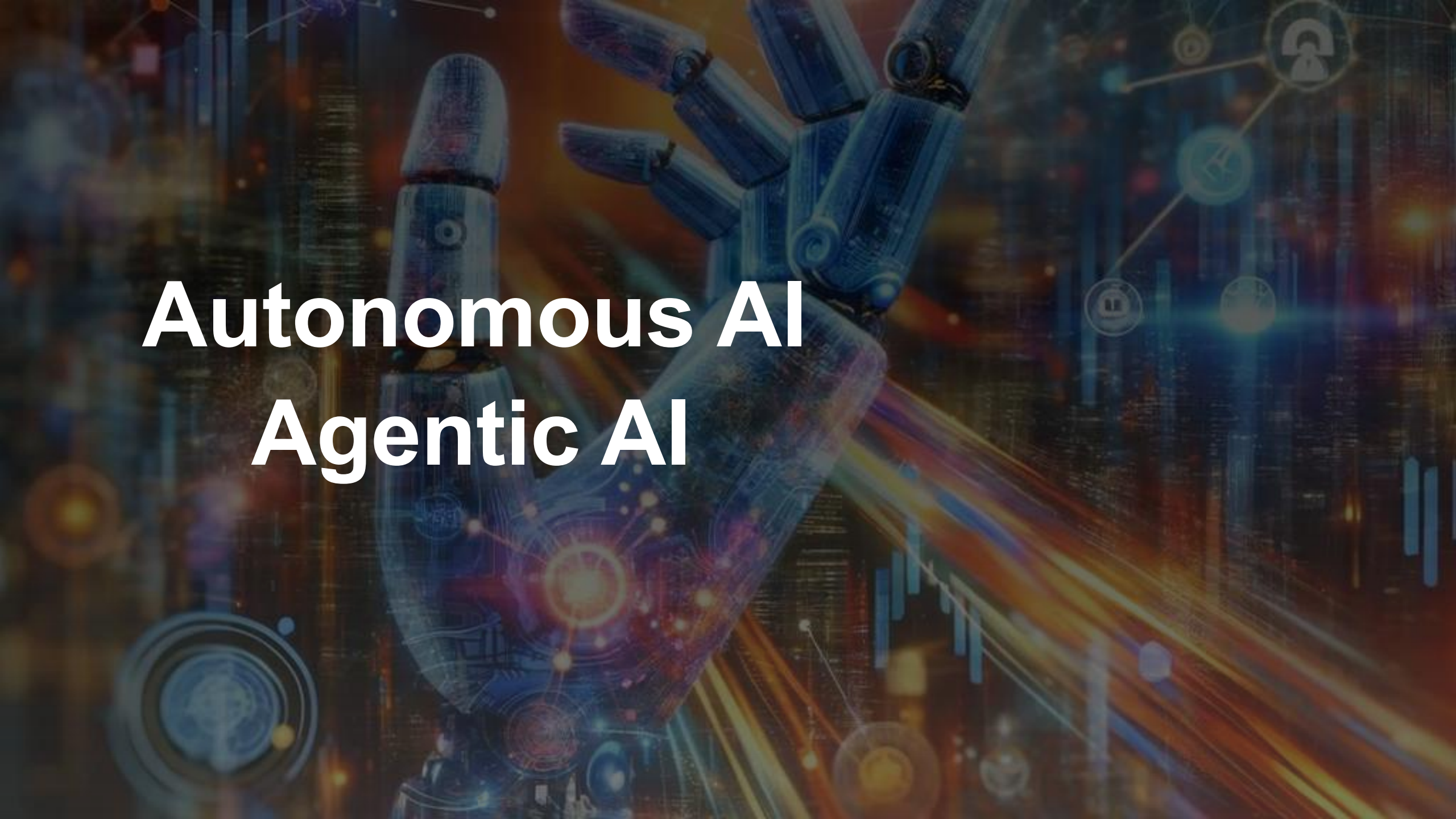
Output: Draft response explaining recycling instructions

Reality: May give incorrect information about local recycling programmes

Large Language Models(LLMs)

All these uses require **significant human oversight** because LLMs frequently "**hallucinate**" (make up) information that sounds convincing but is wrong.

They're best used as **first-draft tools** rather than final solutions.



Autonomous AI

Agentic AI

Agentic AI

Agentic AI systems can chain together simple tasks, but they often struggle with complex decision-making.

They function more as **advanced automation** than as truly intelligent agents—useful for **handling routine workflows**, but still reliant on **human oversight** for high-stakes or nuanced situations.

Agentic AI

Goal Setting

Define and pursue objectives autonomously

Decision Making

Evaluate options and choose best actions

Tool Usage

Interact with APIs, databases, and systems

Adaptation

Learn and adjust based on outcomes

Scheduling

Plan and execute time-based actions

Collaboration

Work with humans and other agents

Agentic AI

Inventory Management Integration

- **Question:** "Our cardboard packaging stock has fallen below minimum levels - what are our options?"
- **Actions:** Checks supplier availability, compares prices, recommends orders within budget limits, updates procurement systems
- **Reality:** Suggests purchases but humans make final ordering decisions - too risky for autonomous purchasing

Responsible AI Implementation

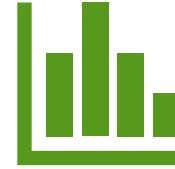




**Content
Validation &
Review**



**Copyright & IP
Protection**



**Training Data
Governance**



**Transparency &
Accountability**

AI: The Future?

- **Human-AI Collaboration**
- **Sustainable Innovation**
- **Trustworthy Systems**



So how can you collaborate with us?

Partner with us – ways to work with us

Academic expertise

By collaborating with our academics and students, organisations can solve problems and create innovative solutions with social, cultural, and economic impact.

Opportunities

- Consultancy/Contract research
- Knowledge Transfer Partnerships
- Collaborative research projects
- PhD Sponsorship
- Short courses and training
- Secondments
- Student Placements
- Student Design Briefs

Knowledge Transfer Partnerships (KTPs)

Collaborate to drive innovation

Knowledge Transfer Partnerships (KTPs) create dynamic connections between businesses and the UK's world-class knowledge base to deliver strategic innovation projects.

Result? The opportunity for your business to realise positive, transformational change and growth.

Powering Innovation

- Access to the exceptional resources of Loughborough University
- A dedicated team to deliver a strategic project
- Expert academic input bringing a breadth and depth of knowledge to support the project
- The consultancy and guidance of a highly experienced Knowledge Transfer Adviser
- The partnership introduces new capabilities and embeds knowledge

KTP Packaging Example



+ colleagues in Department of Materials

- 2 year KTP
- Alternatives to single-use plastics which could revolutionise the composition and manufacture of food packaging
- Investigation of Aquapak's Hydropol™ polymer's adhesive properties
- This has paved the way for the introduction of a range of new packaging materials with enhanced functionality and improved end-of-life biodegradation



In 2024, the British Crisp Co. – in partnership with Evopak and using Aquapak's technology – launched the first fully recyclable crisp packet

Design Building Tour

Fancy a tour of our facilities?

Stay in the lecture hall at 4pm and Nikki (+ colleagues) will give you a tour of the Design Building.



Thank you, any questions?