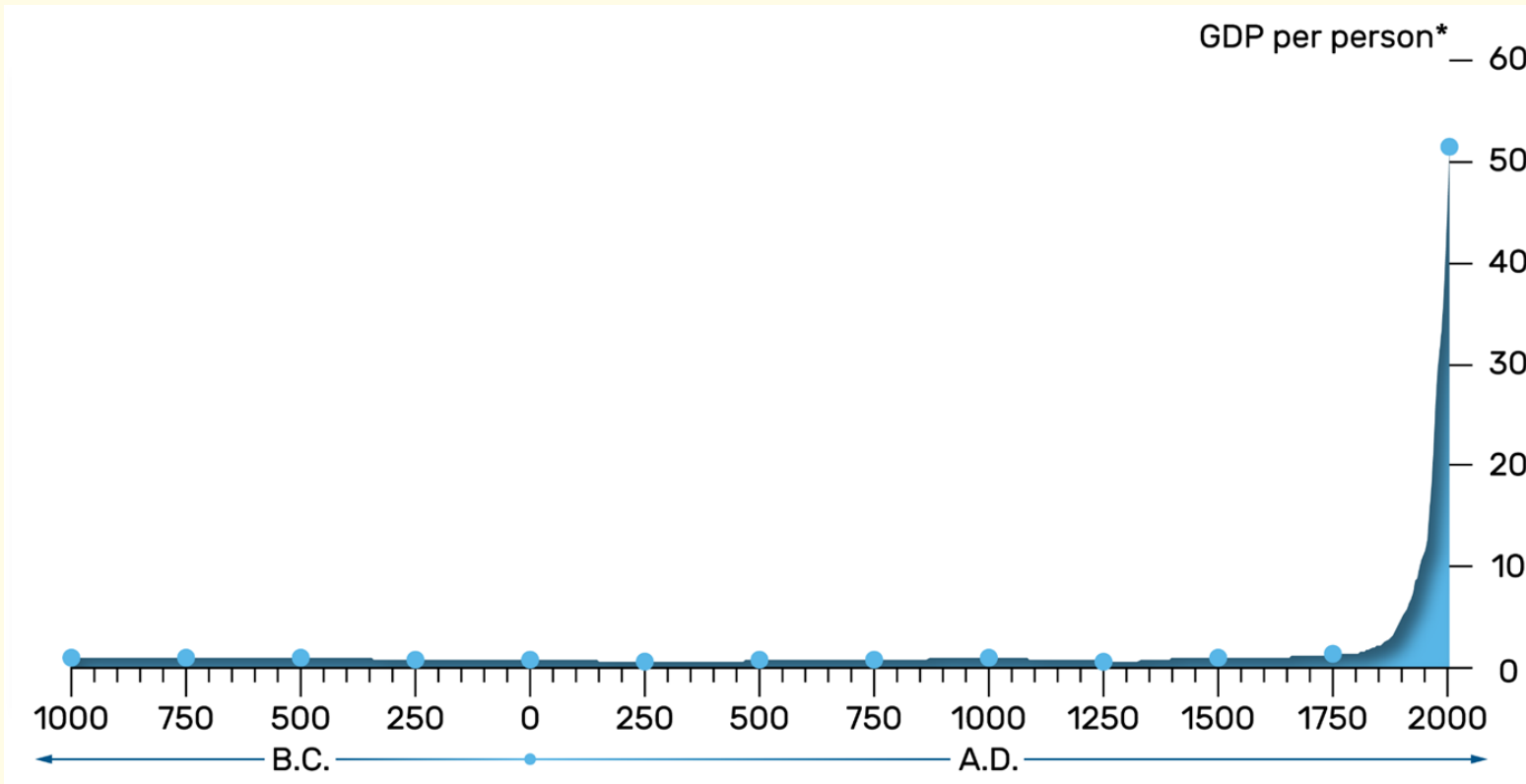


# Personal Perspective

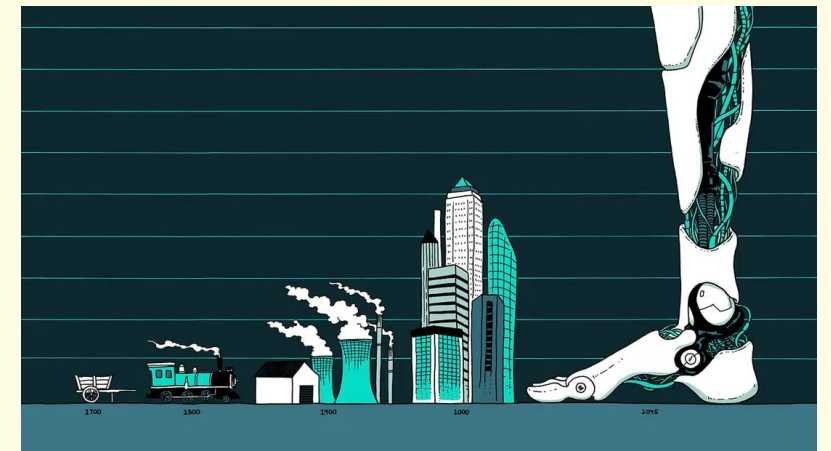
Jonathan Corney, Chair of Digital Manufacturing, UoE



UNTIL 1700 the world economy did not really grow—it just stagnated. Over the previous 17 centuries global output had expanded by 0.1% a year on average, a rate at which it takes nearly a millennium for production to double. Then spinning jennies started whirring and steam engines began to puff. Global growth quintupled to 0.5% a year between 1700 and 1820. By the end of the 19th century it had reached 1.9%. In the 20th century it averaged 2.8%, a rate at which production doubles every 25 years. Growth has not just become the norm; it has accelerated.

The Economist, Jul 24th 2025

My position is that GenAI (in all its forms) is an opportunity for increased industrial productivity



Its axiomatic that increased industrial productivity is a good thing!

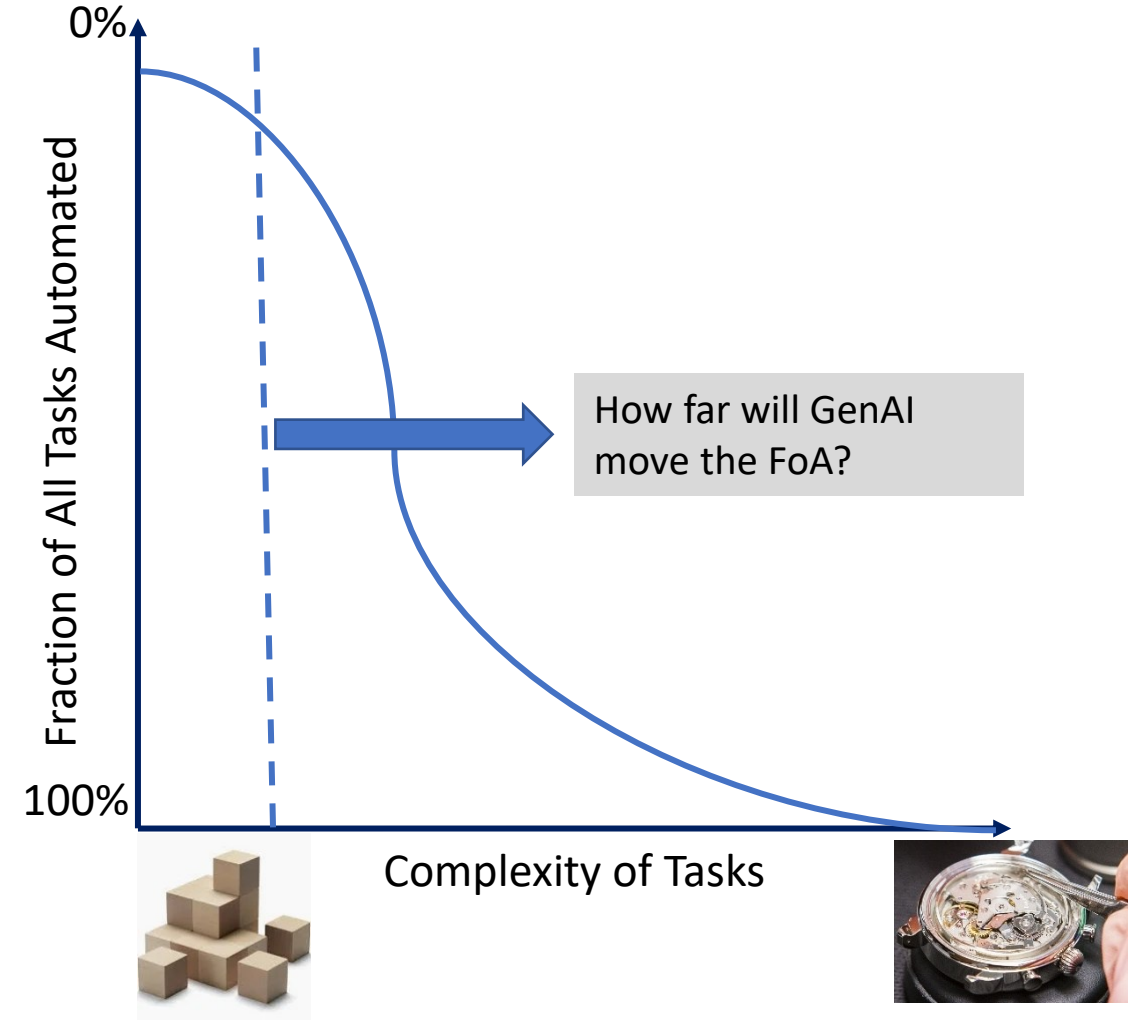
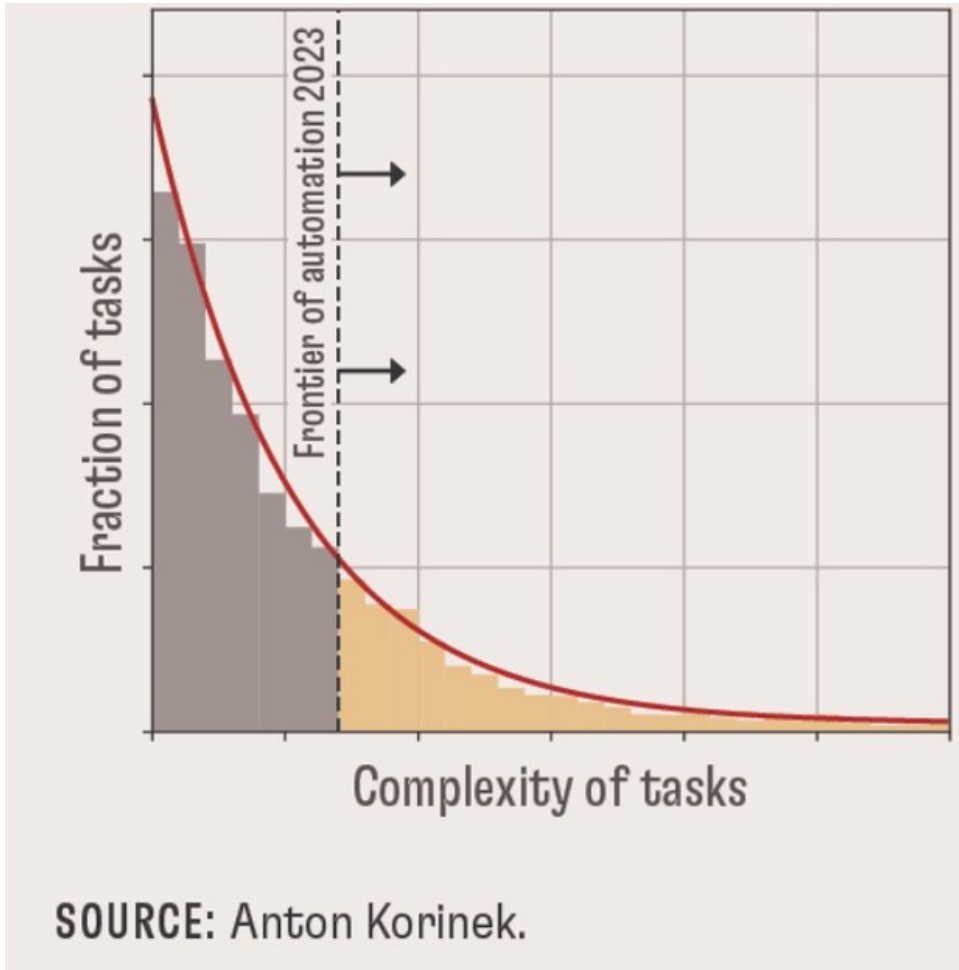


THE UNIVERSITY of EDINBURGH  
School of Engineering

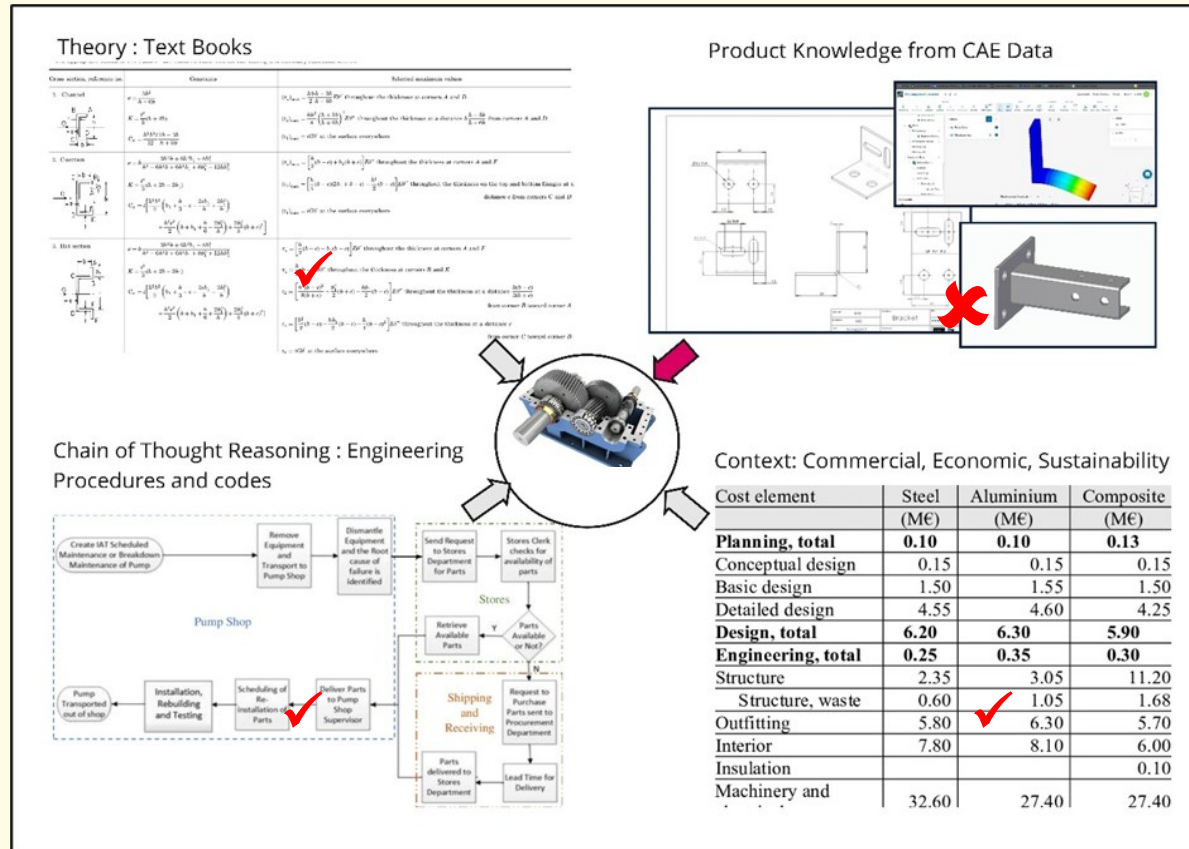
Slide 1: Personal Position on GenAI for Technical Design

# Why believe that industrial productivity will increase?

It appear likely that it will move the Frontier of Automation (FoA)



# Gaps? Chatbot already know a lot about engineering



The uploaded images show the same 3D CAD model of a bracket from three different view points. How many circular holes does component have in total?

The component in the images has a total of **six circular holes**. This is determined by counting the visible holes in each view and ensuring not to double-count any shared ones. Here is the breakdown:

1. The first image shows four holes (one in each corner).
2. The second image shows the same four holes from a different angle.
3. The third image shows two additional circular holes on the upright flanges.

Thus, the total number of circular holes is six.



Testing Multi-view Comprehension

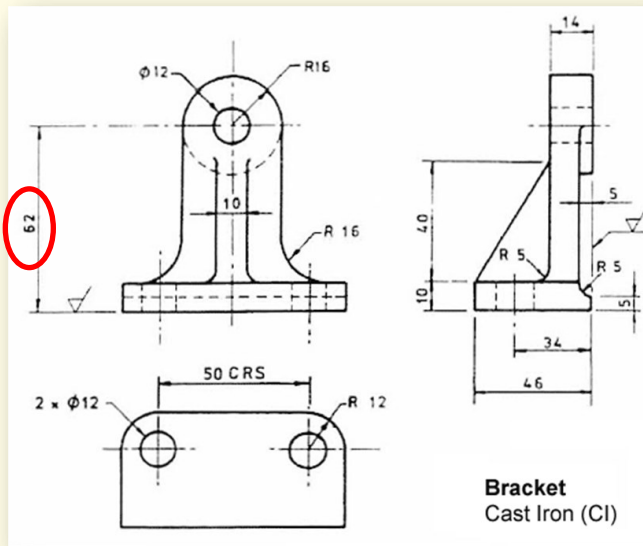


How do you think this component could be manufactured (what processes would be involved)?

Shape/Image Classification

Gaps in current GenAI technologies

# Spatial Relationships is a Gap



The image shows an engineering drawing of a cast iron (CI) bracket. Here's a detailed breakdown of the drawing:

## Orthographic Views:

### 1. Front View (Left)

- Height of the bracket: 62 mm.
- The main cylindrical hole at the top has a diameter of 12 mm.
- The top section has a radius (R) of 16 mm.
- The center hole is positioned 10 mm from the top.
- The overall width of the base is not directly mentioned but can be inferred from the top view (approximately 50 mm).
- The bottom base has a thickness of 10 mm.

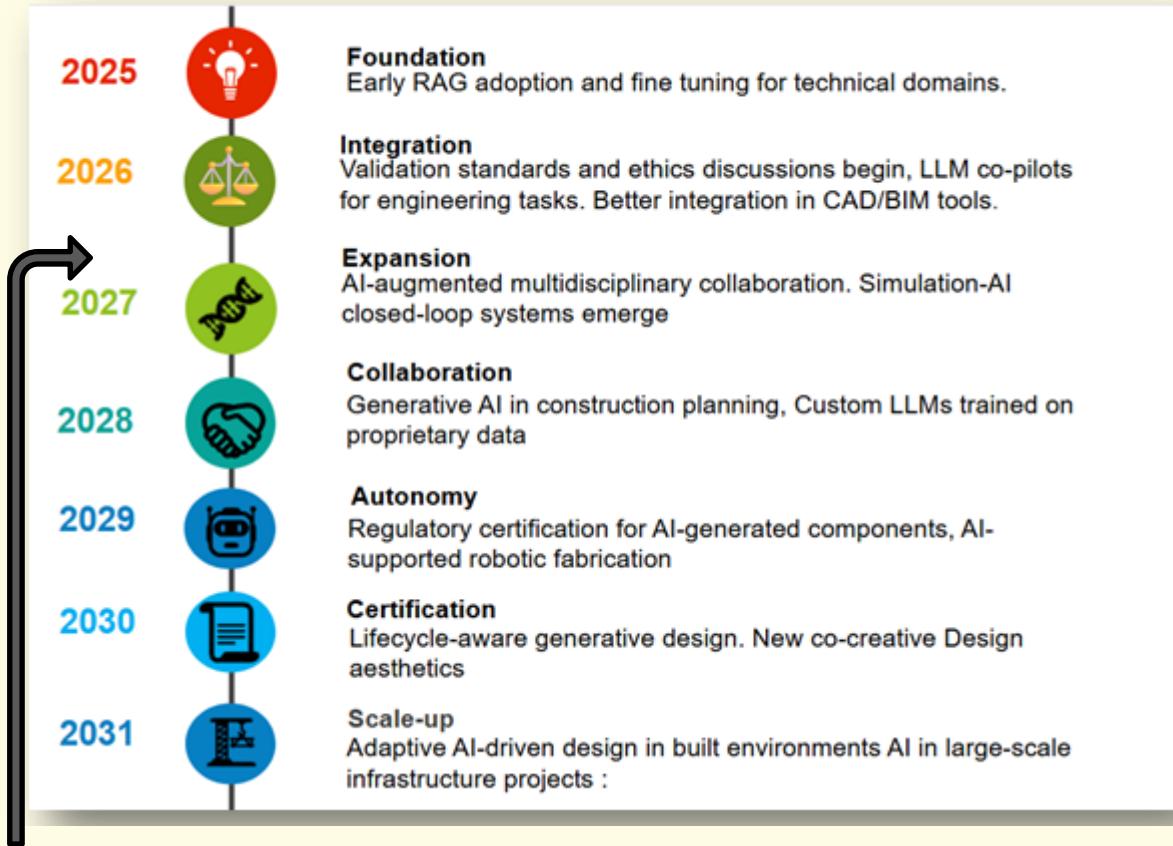
### 2. Side View (Right)

- The bracket extends 46 mm from front to back.
- The vertical height is 62 mm, matching the front view. **✗**

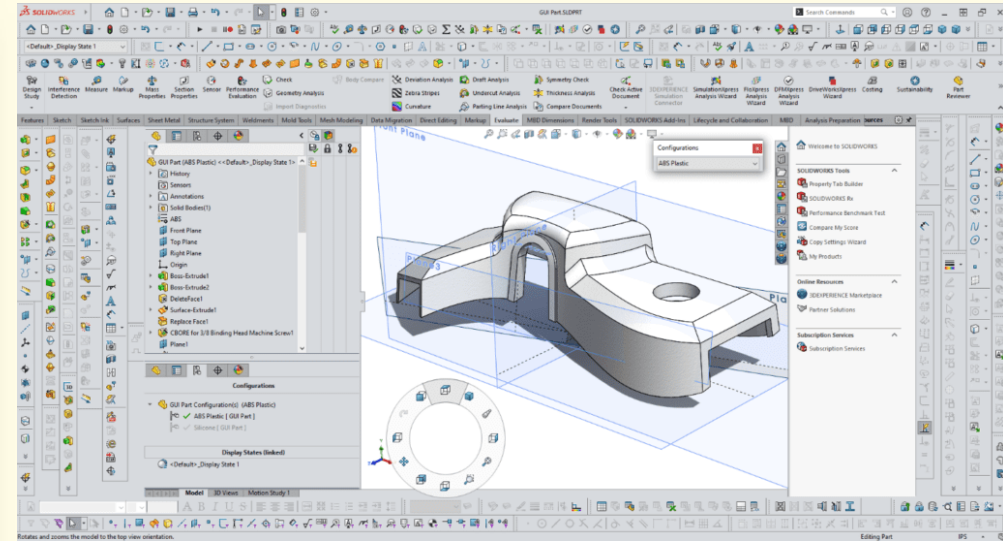
A clear gap is LMM's lack of understanding of 2 and 3D shape




# Road Map for GenAI in Technical Design



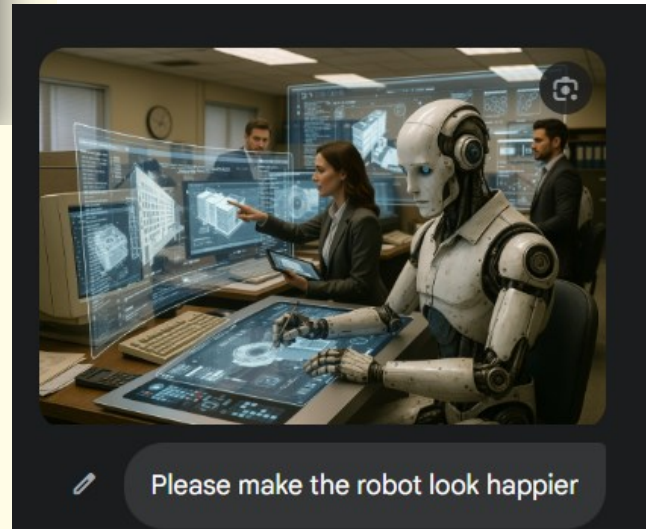
2026 : Conversational Interfaces for CAE software



User interfaces to technical software are a barrier to use

 **TECHNOLOGY & AUTOMOBILE** SEP 1, 2025, 11:19 AM IST

**Google's Nano Banana: The AI image tool that could replace Photoshop?**



Please make the robot look happier

