



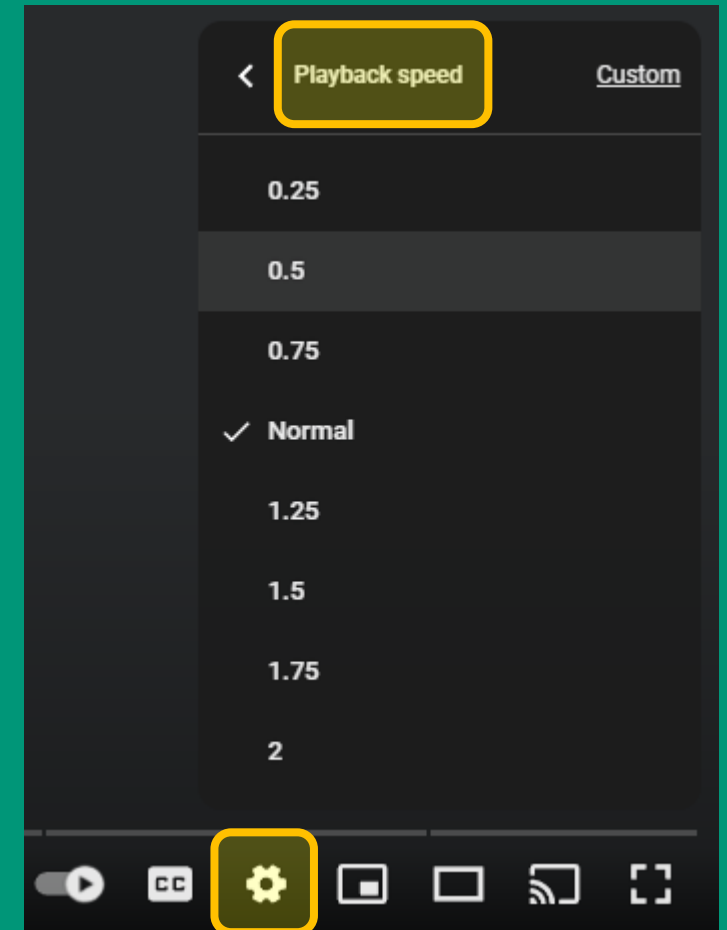
Today's video is about  
**AI and Architecture**

# Let's dive in!

## And explore this topic...



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Am I talking too fast?  
Slow me down if you like!

# Why make this video?

## Because...

- A lot of people are asking about it
- People want to know my take
- It's a relevant topic right now
- It may change Architecture somewhat
- There's a lot of misinformation out there!
- I find it interesting!



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# Artificial Intelligence

## What exactly is it?

**AI is simply put, machines displaying intelligence.**

*But that doesn't explain much*

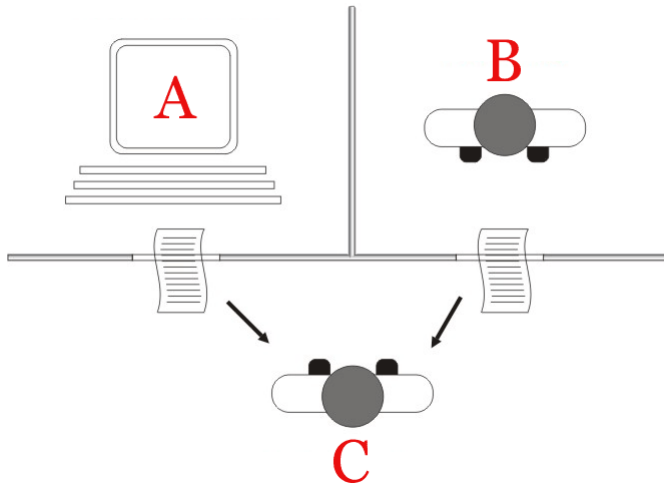
Intelligence primarily relates to not only the ability to collect knowledge; but apply it – to both familiar and unfamiliar scenarios.



# Measuring Intelligence

## The Turing test

Can someone tell the difference between a human and a machine interaction?



# AI

# How does it work?

## Recognition / confidence

Putting it (overly) simply:

- Takes data sources
- Converts them into workable/comparable data
- Processes it using algorithms
- Returns an outcome

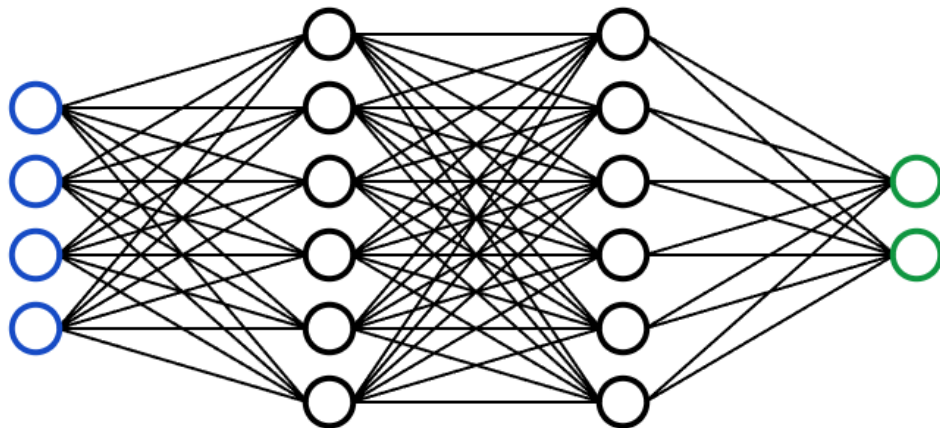
The outcome will generally be returned with some degree of accuracy/confidence by the algorithm.



# Algorithms

There are many sub-sets of AI and models developed to solve or assist with a variety of tasks. Each uses various algorithms and processes to handle the data provided to it.

I'm not even going to pretend I understand these!



# AI is already around us

It's not new by any means, just becoming more understood at a mainstream level.

## For example:

- Facial recognition
- Tailored feeds and ads
- Search engines
- Spam filters
- Spell checkers
- Self-driving cars
- And many more applications...

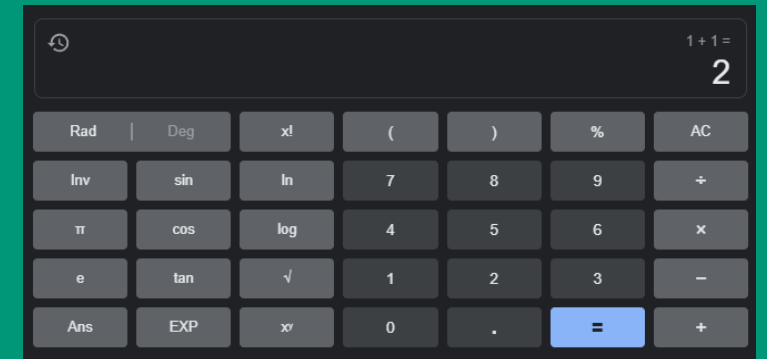


# AI wash

There's a lot of **hype and mis-labelling** of software and platforms as 'AI'. We saw the same issue with BIM initially.

To the uninformed, something as 'simple' as a calculator could be sold as AI, we need to be clear where we draw lines as industries.

Mathmobot 3000 tm.



# AI and Architecture

**In my opinion it will be:**

- Faster than we realize
- Slower than we expect

I expect the two main models to continue to be explored in architecture primarily...

**Those being:**

- GPT and similar deep learning models
- Text to image/diffusion (ML) models



The future architect?

# GPT(-3) applications

These types of models allow us to generate a large amount of data or information based on lesser amounts of prompting and text provided by the user.

## Potential uses include...

- Report creation and research
- Copywriting
- Specifications
- Programming
- And much more...



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# The death of programmers?

Does GPT replace the average programmer? At least for the time being, **definitely not** – it sure can help them though!

ChatGPT has become well known for being able to put together code based on its gathered data across the internet.

Let's briefly explore an example using **Dynamo**, **Python** and the **Revit API**...



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GP write me a dynamo python code that:

1. Gets the first wall in my selection
2. Finds all walls in the active view which are parallel to it
3. Creates a dimension between the centreline references of those walls

Here is a Python script that should accomplish the tasks you specified:

```
# Import the necessary modules
import clr
clr.AddReference('ProtoGeometry')
from Autodesk.DesignScript.Geometry import *

# Import Revit API
clr.AddReference('RevitAPI')
import Autodesk
from Autodesk.Revit.DB import *

# Import Revit Services
clr.AddReference('RevitServices')
import RevitServices
from RevitServices.Persistence import DocumentManager
from RevitServices.Transactions import TransactionManager

# Get the current document
doc = DocumentManager.Instance.CurrentDBDocument

# Start a transaction
TransactionManager.Instance.EnsureInTransaction(doc)

# Get the first wall in the selection
selection = [doc.GetElement(x) for x in RevitServices.Selection.GetElementIds()]
```

Regenerate response

# What do I think of it?

As it stands, it is **unlikely** that models like Chat-GPT will come close to allowing the average architect to put together functional code.

It is great at doing 'snippets' that partially work, but to create complex applications that are functional it doesn't yet come close.

We must also remember it is only as good as the data it is working with.



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# Text to image models

These types of models allow us to create or modify images based on text prompts by drawing on vast libraries of pre-classified imagery.

## Potential uses include...

- Concept design and inspiration
- Space planning
- Rendering
- Documentation (eventually)



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# AI-aided imagery

This field is still growing and is at an experimental stage in architecture currently. We still typically depend on human sketching, documentation and design from a legal and necessary aspect.

Let's quickly explore two text to image tools:

- Craiyon (text > image)
- Veras by EvolveLab (image/text > image)



# VERAS

AI Powered Visualization

**Craiyon** (Formerly DALL-E Mini)

Free online AI image generator from text



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# The death of sketching?

If we're so keen to remove the programmer from the program, why don't we want to remove the sketcher from the sketch?

I see the biggest shortcoming of this technology being the **unconscious/unintentional** component it introduces to the design process.

Having said that, it's certainly a powerful concept generator in a well-trained set of hands.



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Arturo Tedeschi (+ Midjourney?)



# Some major issues

**AI has some serious issues to overcome:**

- Attribution and plagiarism
- Who is the true author?
- Who holds legal responsibility?
- Slow death of originality
- Oversaturation before peaking

How will we overcome these?



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# Is it going to be simpler?

**When BIM came, many thought:**

- We would not need drafters
- Less people could be hired
- Everything would be simpler/smooother

AI seem to promise the same thing – will we instead see role and industry transformation, and with it a new degree of complexity to manage?



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# My current verdict on AI

**As it stands right now, to me:**

- There is still way too much hype
- Companies are proving concepts only
- What we have can only generate half-baked outcomes, that do not hold up to Turing tests generally
- Programmers are needed more than ever
- Architects are still operating at a different level to most tools on the market



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# Find my stuff at >>

## Aussie BIM Guru's github

<https://github.com/aussieBIMguru>



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**Gavin Crump**  
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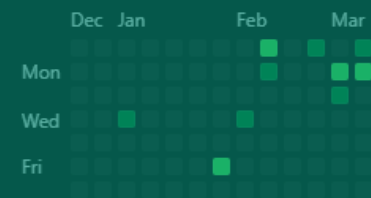
Miscellaneous files to support video content

● Python

☆ 20

🔗 5

46 contributions in the last year



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# Thanks for watching!

You can contact me at...

[aussiebimguru@gmail.com](mailto:aussiebimguru@gmail.com)

Got a video request?

Leave it in the comments – I reply to every single one!



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