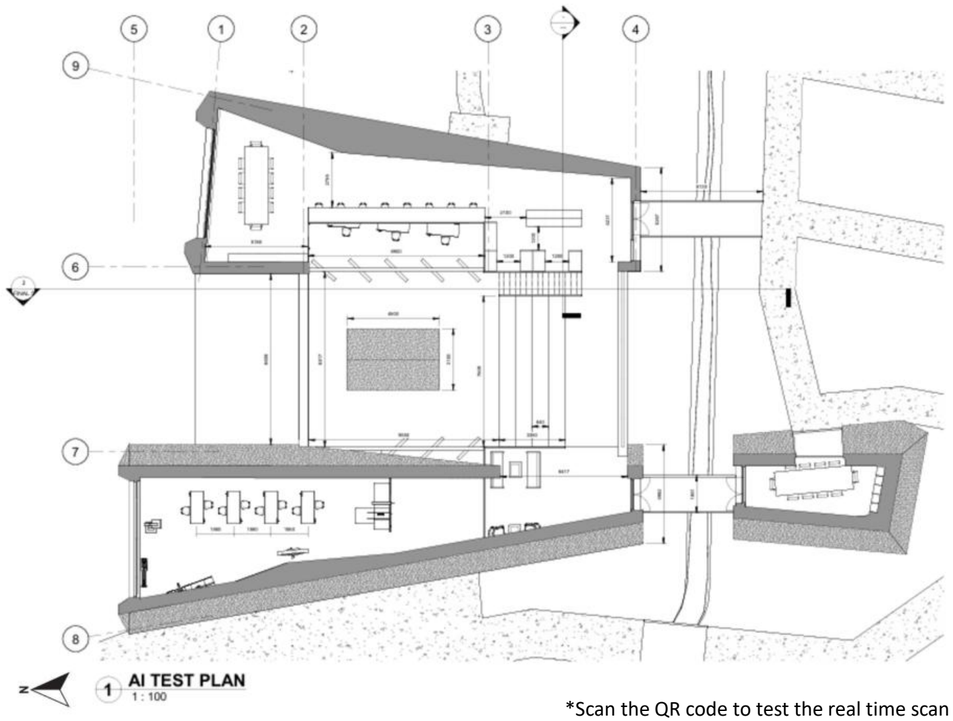
# EVOLVING SKILLSET OF A GRADUATE ARCHITECT

AN EVALUATION OF AI IN ARCHITECTURE

Conor Nolan

AI research at Henry J Lyons

SCAN TO TRY THE APPLICATION




*Scan the QR code to test the real time scan prototype

# How it Started

The problem: quality assurance lacked the structured, data-driven support seen in other professions

The research: The Yale collaboration allowed exploration of an AI-powered drawing-review tool to address that gap

The prototype: Computer vision model which ran in real time on a phone camera

The conclusion: To progress further, the research needed access to structured, consistent office data

# Why Make Our Own?



Compliance: Clear audit trails over “black boxes”

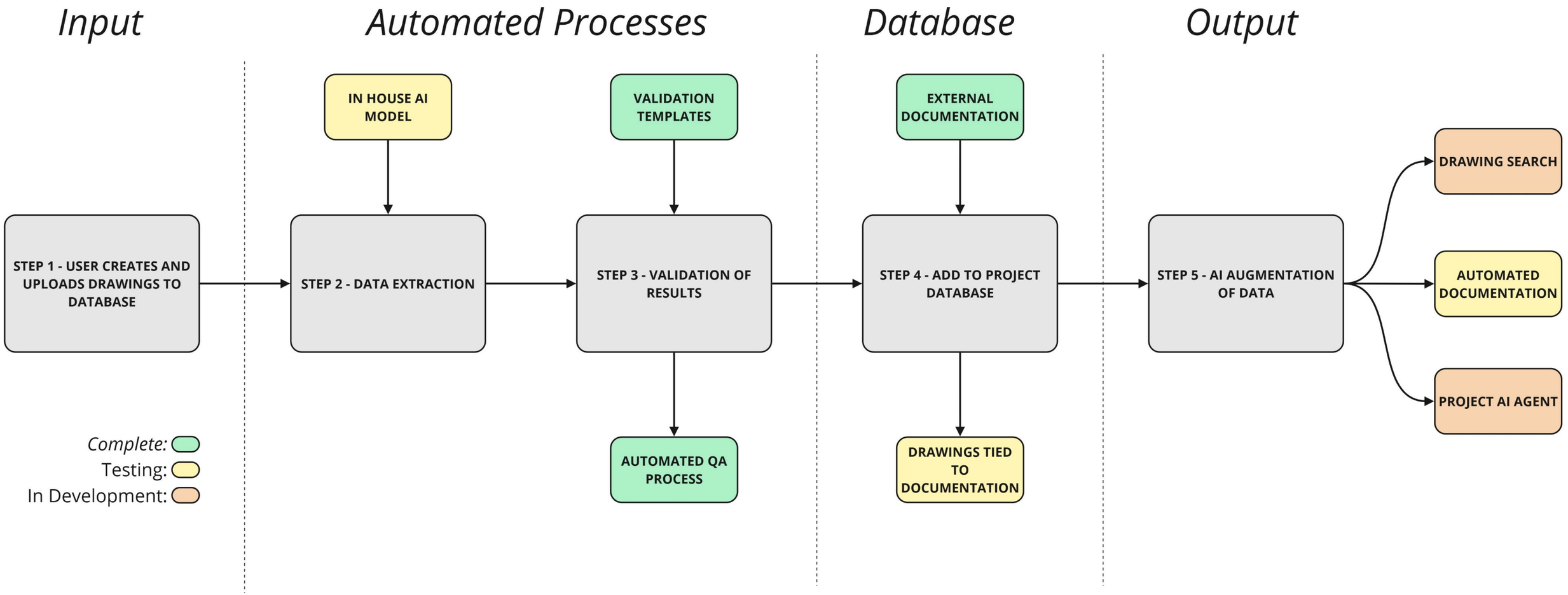
Transparency: Visible probability vs True/ false outputs

Structure: Database ready vs generative text outputs

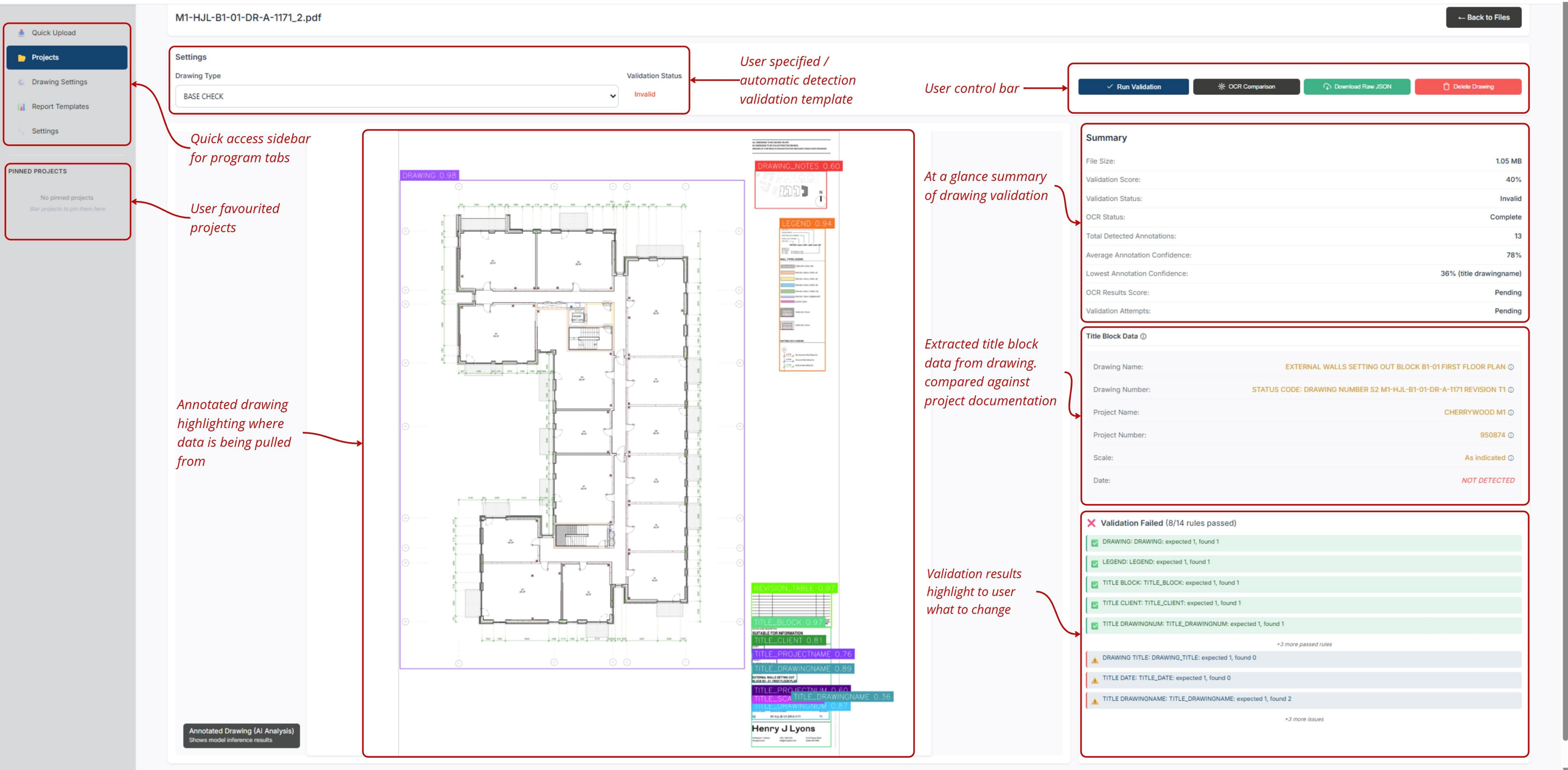
Control: Adapt tools to practice, not practice to tools

AI Literacy: Understanding the logic behind AI

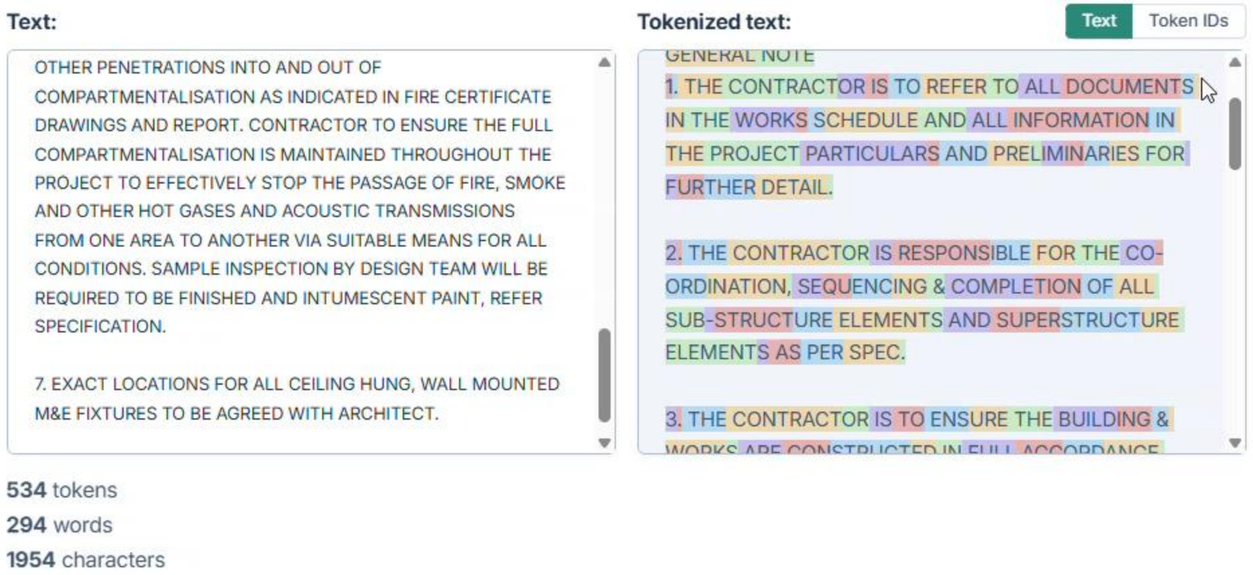
# How it Works


Input
Automated Processes
Database
Output
IN HOUSE AI MODEL
VALIDATION TEMPLATES
EXTERNAL DOCUMENTATION
STEP 1 - USER CREATES AND UPLOADS DRAWINGS TO DATABASE
STEP 2 - DATA EXTRACTION
STEP 3 - VALIDATION OF RESULTS
STEP 4 - ADD TO PROJECT DATABASE
STEP 5 - AI AUGMENTATION OF DATA
DRAWING SEARCH
AUTOMATED DOCUMENTATION
PROJECT AI AGENT
AUTOMATED QA PROCESS
DRAWINGS TIED TO DOCUMENTATION
Complete:
Testing:
In Development:

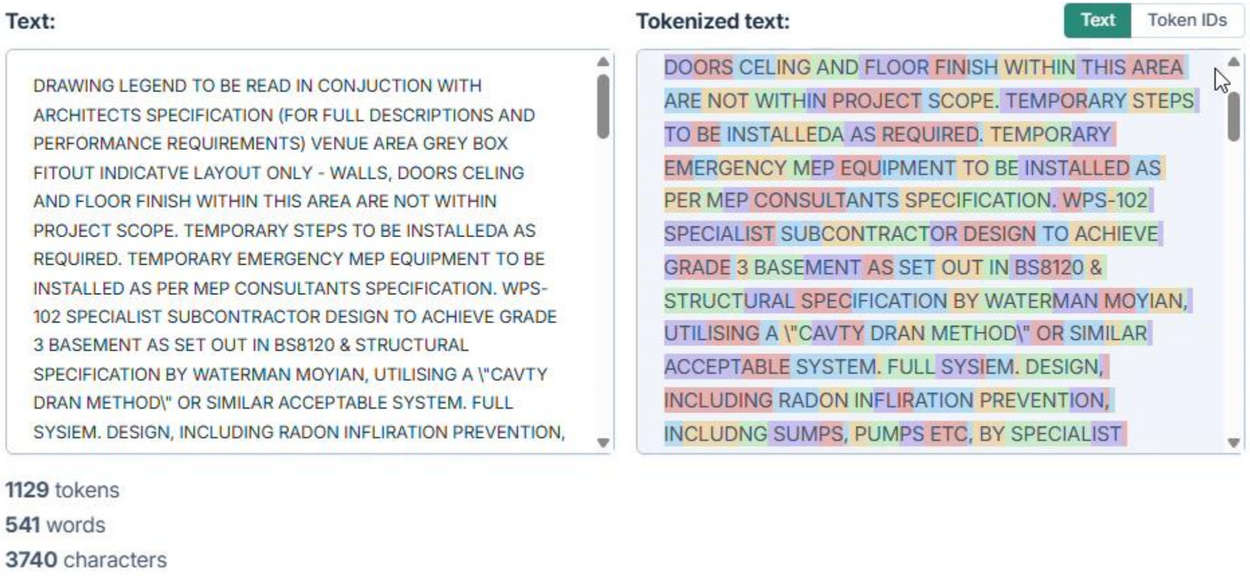
# Verification Process



LLM Model Output:




HJL Model Output:




# Model Performance

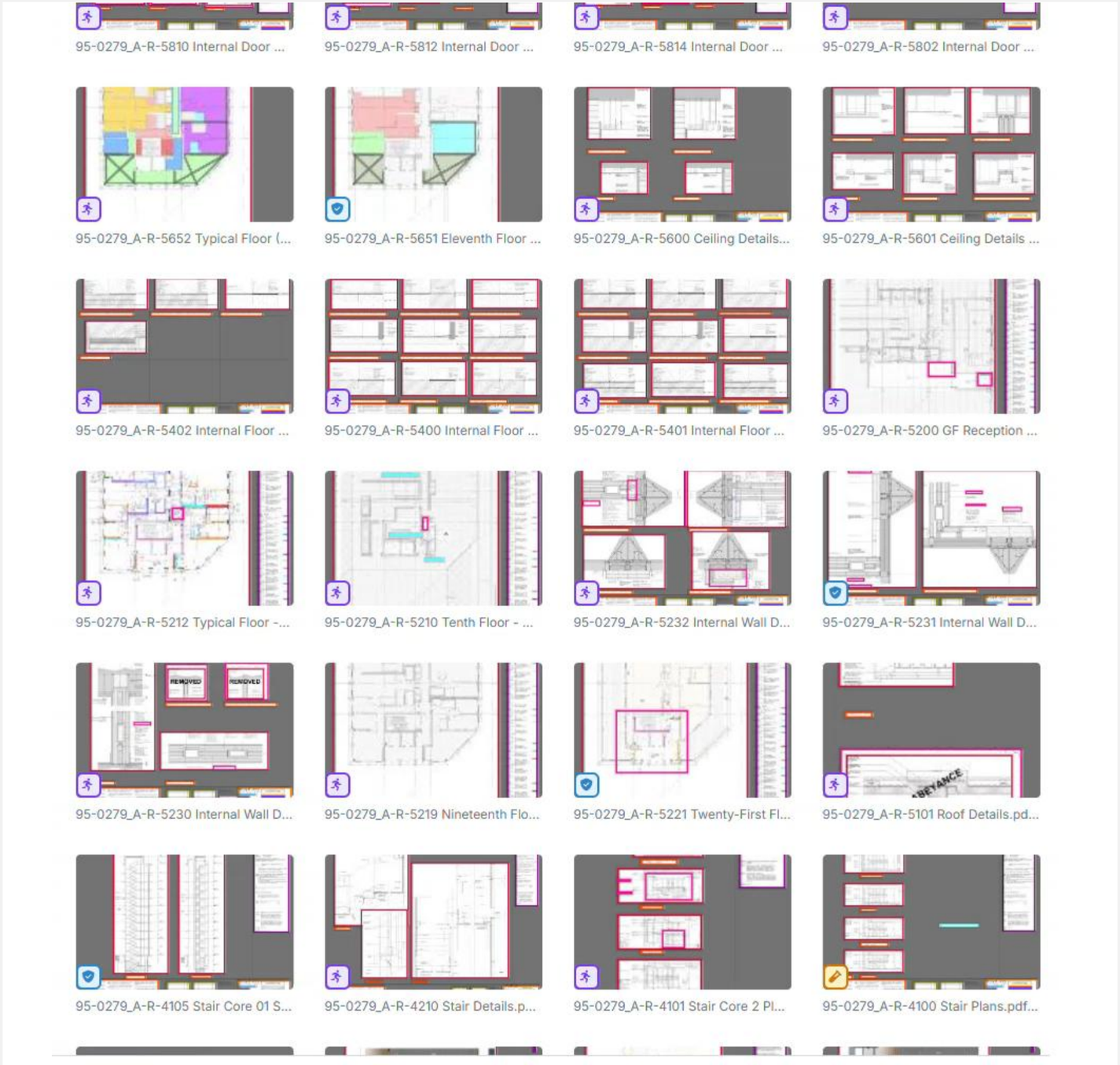
Performance: Achieved 96% accuracy across 25 distinct categories

Benchmark: Leading VLMs average just ~41% accuracy on building plans.

Conclusion: General models reason well but lack domain knowledge

Below is a graph comparing our model to the findings of AECFoundry:

| Criteria | HJL Model | Best VLM |
|---|---|---|
| Categories Tested | 25 | 5 |
| Accuracy Average | 96% | 41% |
| Lowest accuracy | 90%(configurable) | 26%/14% |
| Speed | 3.4s / sheet | Hours/150 |




# The Reality

Time: 10-15 mins per sheet, 375 drawings.

Subjectivity: Inconsistent categorisation or labelling confuse the model.

Rapid Development: investments could be risky, as new models in future could have the same abilities.

# What This Means For Practice

# Expanding What Drawing Data Can Do

Practice data is a resource
its value grows as AI capability increases

Structured, accessible data realises that value

Drawing data = searchable, verifiable, reusable knowledge

Safeguard our value
treat drawings as reusable IP

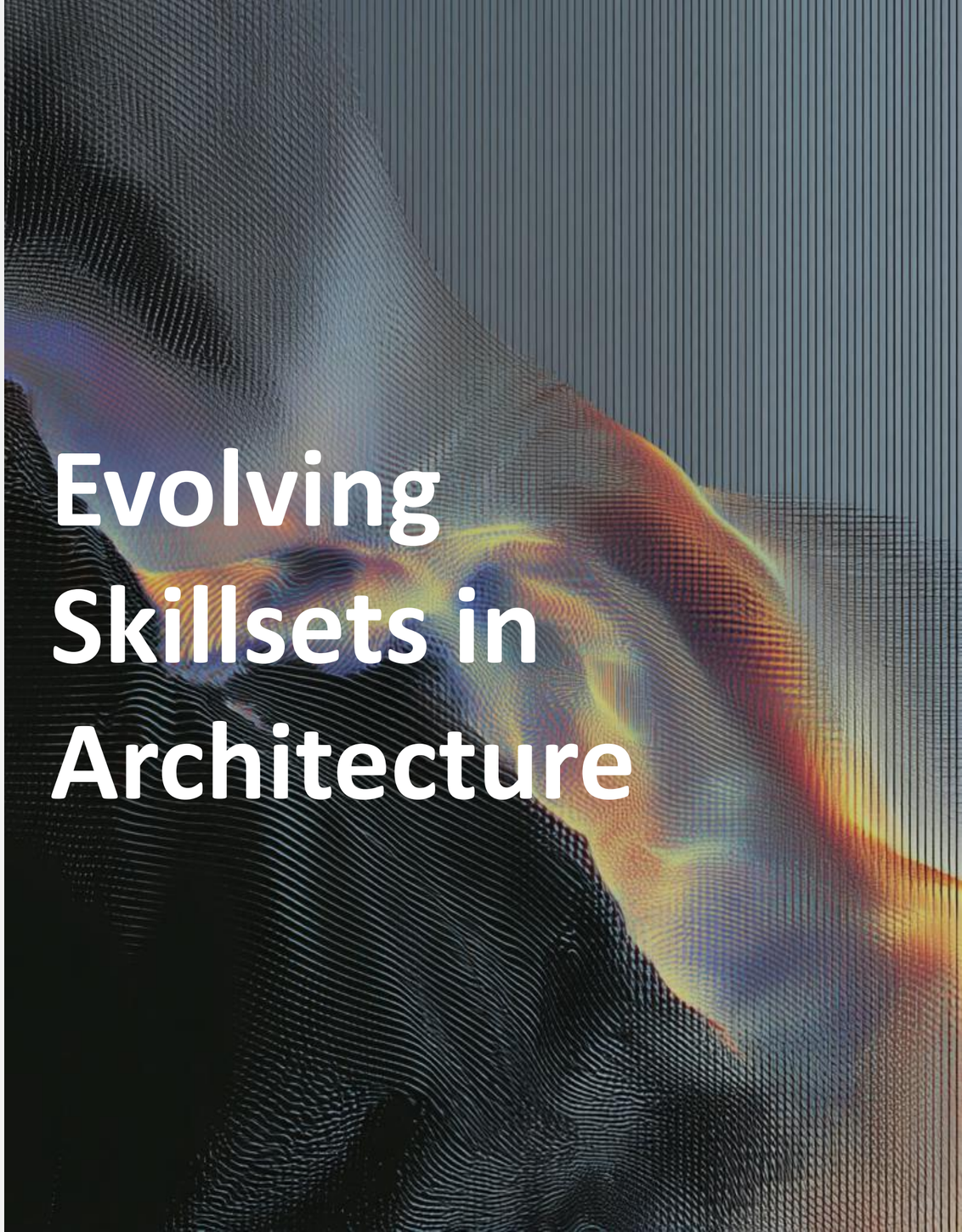
# Evolving Skillsets in Architecture

Graduates now bring new technical abilities, expanding what practices can deliver

Less reliance on major software vendors as open-source tools mature

Open source carries risk - protect privacy and intellectual property

Responsible AI use means choosing tools that fit our work

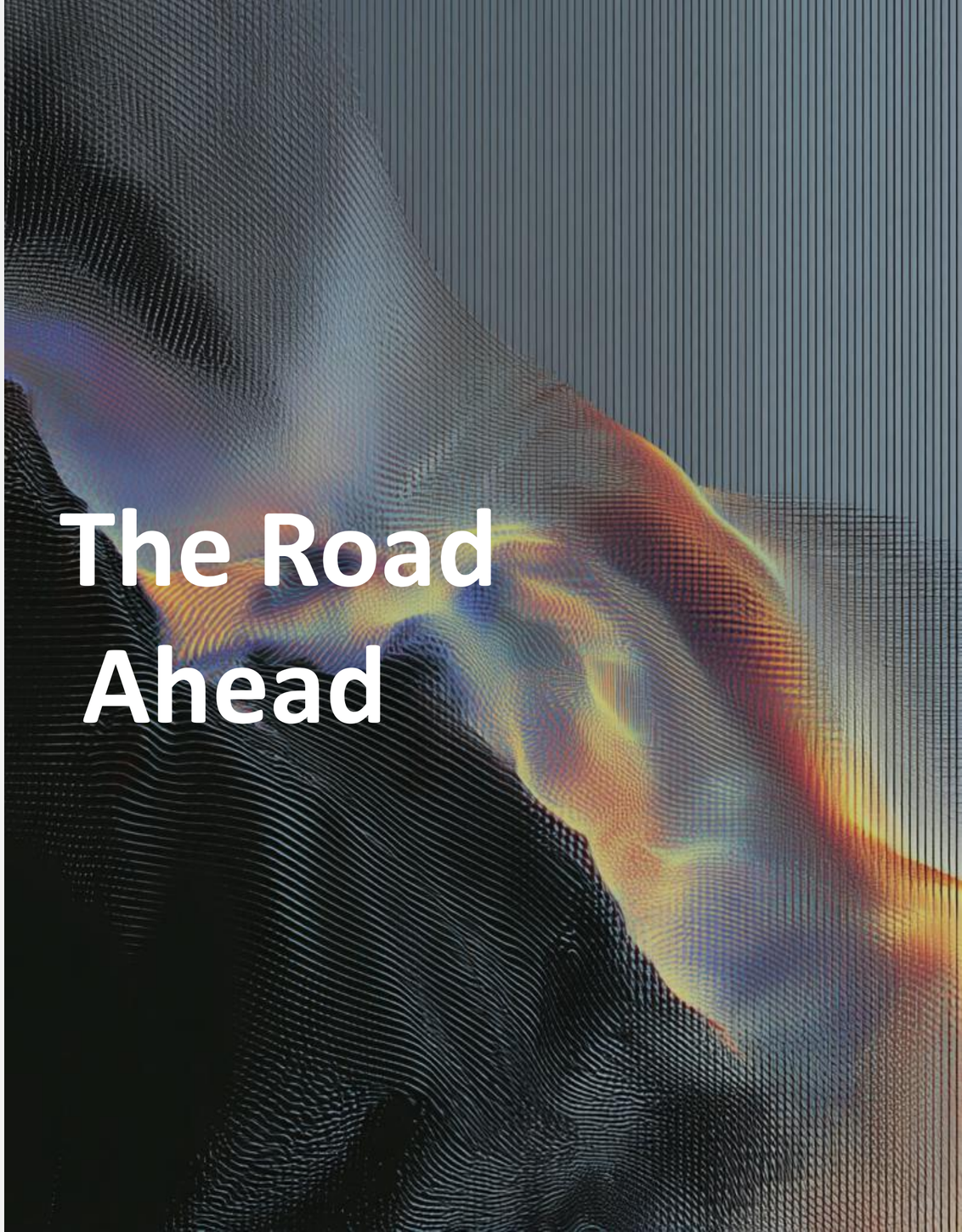


# The Road Ahead

If visual-language capabilities emerge, we'll understand and apply them responsibly

Increase in model spatial intelligence

Resurgence of AR/VR technology



# Key Takeaways

AI remains an assistant, more time for creativity

Software should adapt to our workflows

Learning how these systems work safeguards our value and expands our reach as designers