

A solid blue rectangular bar is located in the top left corner of the slide.

**AI EXPLAINED:
DEFINING EMERGING AI TOOLS THAT
CAN TRANSFORM YOUR CONSTRUCTION
BUSINESS**

A solid blue vertical rectangular bar is located on the right side of the slide.

An iceberg floating in the ocean, with a small portion visible above the water and a much larger portion submerged below. The sky is blue with light clouds.

CHAT GPT

November 30, 2022

**Two Years Old Before Launch
Fastest Growing Tech 100M Users**

Close Competitors:

ChatSonic

Google Bard

Jasper AI

Bing AI

CoPilot

STEEL T@E
COMMUNICATIONS

Generative AI: The 250 vendors automating content, code, and design



250+ VENDORS AUTOMATING CONTENT, CODE, AND DESIGN

Generative AI: The 250 vendors automating content, code, and design

Visual media generation



Text generation



Speech & audio generation



3 GREAT TECHNOLOGICAL
REVOLUTIONS

AGRICULTURAL

INDUSTRIAL

COMPUTATIONAL

THE AI REVOLUTION



WELCOME TO THE AEC AI HUB!

FEEL FREE TO USE AND SHARE IT AS YOU FIND SUITABLE.

LET'S CONNECT ON LINKEDIN TO KEEP THE CONVERSATION GOING!

MADE BY: STJEPAN MIKULIC, PROJECT BIM LEAD AT STARKE INCELS GROUP

AEC AI Hub

This hub is a collection of AI tools and resources within the AEC industry (Architecture, Engineering & Construction).

It's an open database, free for everyone to use, and it's updated regularly.

For more info, read below or contact me - see stjepanmikulic.com for details.

250+ Vendors AUTOMATING DATA ANALYSIS, DESIGN DEVELOPMENT, SURVEYING, DESIGN SPEC, BIM, ROBOTICS, CONSTRUCTION AND MORE.

WHAT IS ARTIFICIAL INTELLIGENCE?

AI is the science of making machines smart

-Demis Hassabis, Co-Founder & CEO, Google DeepMind

YOUR LIFE IS CURRENTLY AI ASSISTED

ZOOM automatically transcribes your recorded meetings.

GOOGLE MAPS routes you to your next job site/meeting.

APPLE unlocks your iPhone by scanning your face.

SPOTIFY learns the music you love.

ALEXA AND SIRI answers your questions.

TESLA AUTOPILOT steers, accelerates, and brakes your car.

EMAIL/OUTLOOK finishes your sentences.

YOUTUBE suggests videos.

FACEBOOK targets you with ad

LINKEDIN curates your homepage and recommends connections.

TIKTOK personalizes the For You Page.

NETFLIX recommends shows and movies.

AMAZON predicts your next purchases.

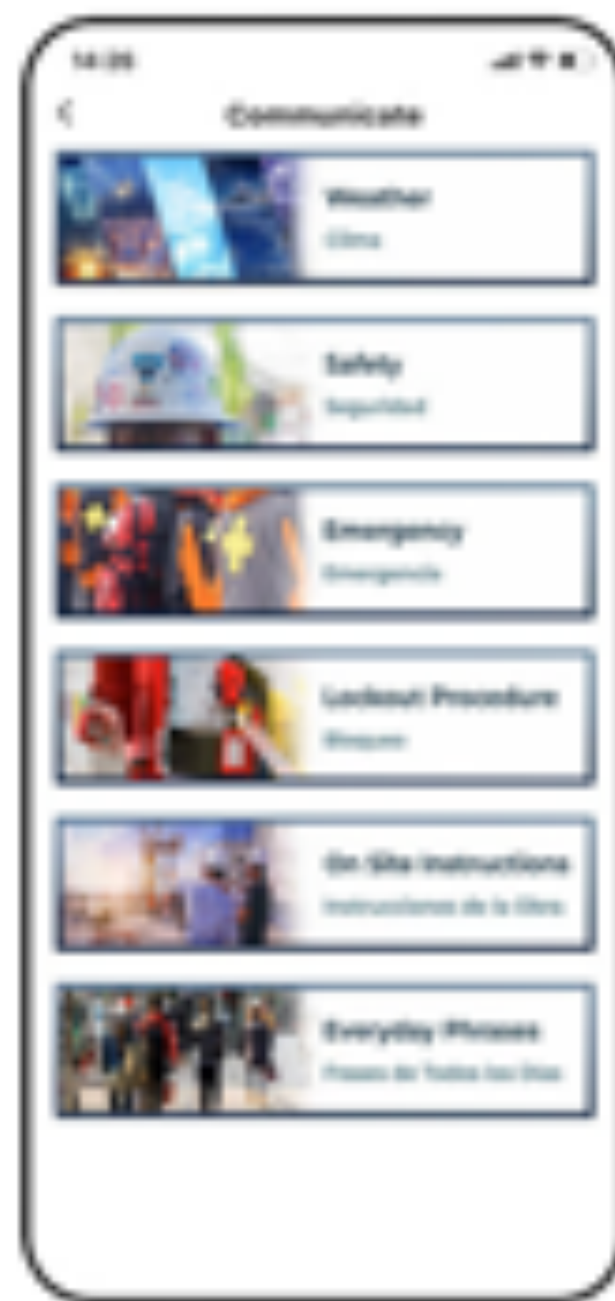
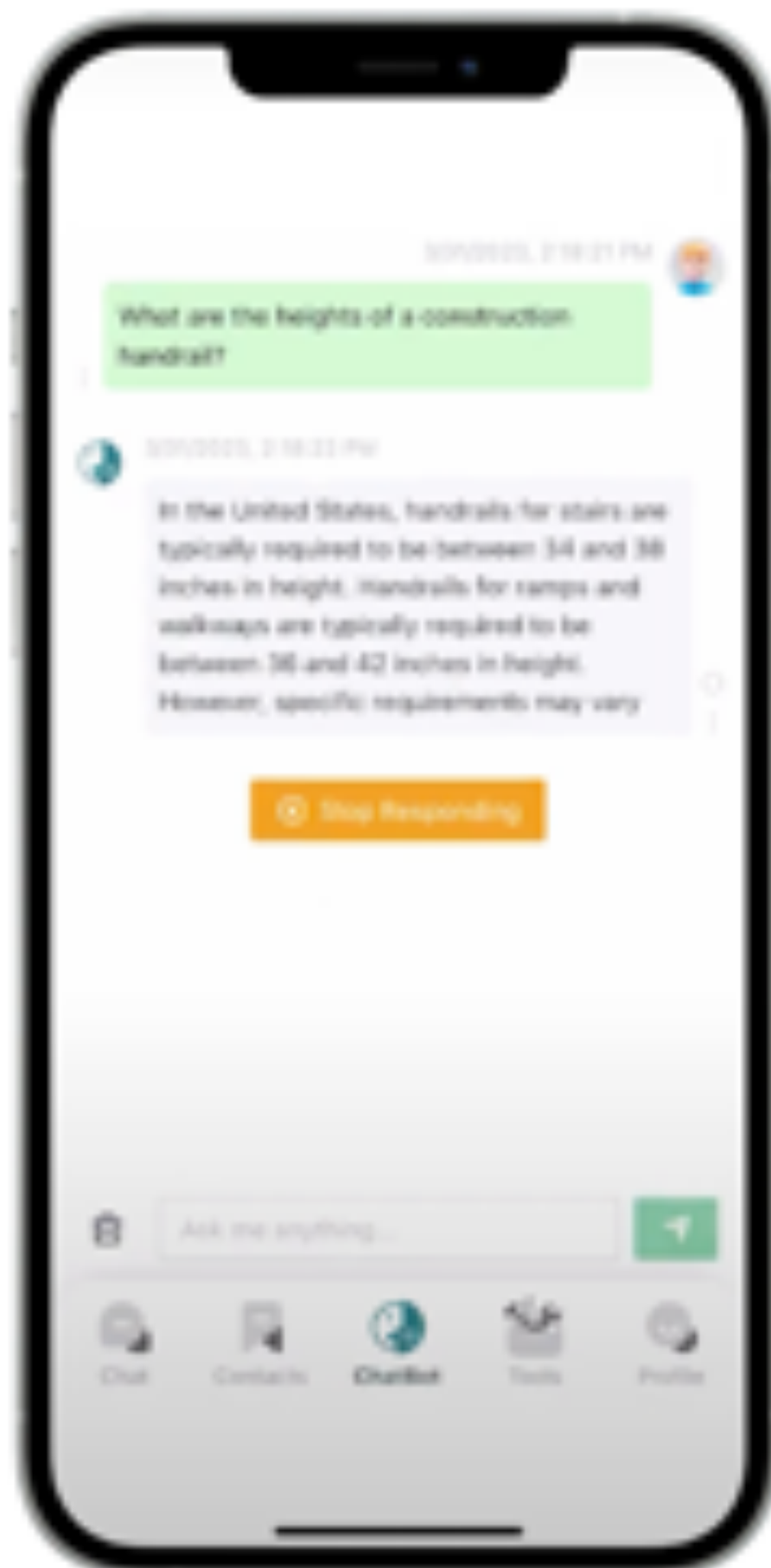
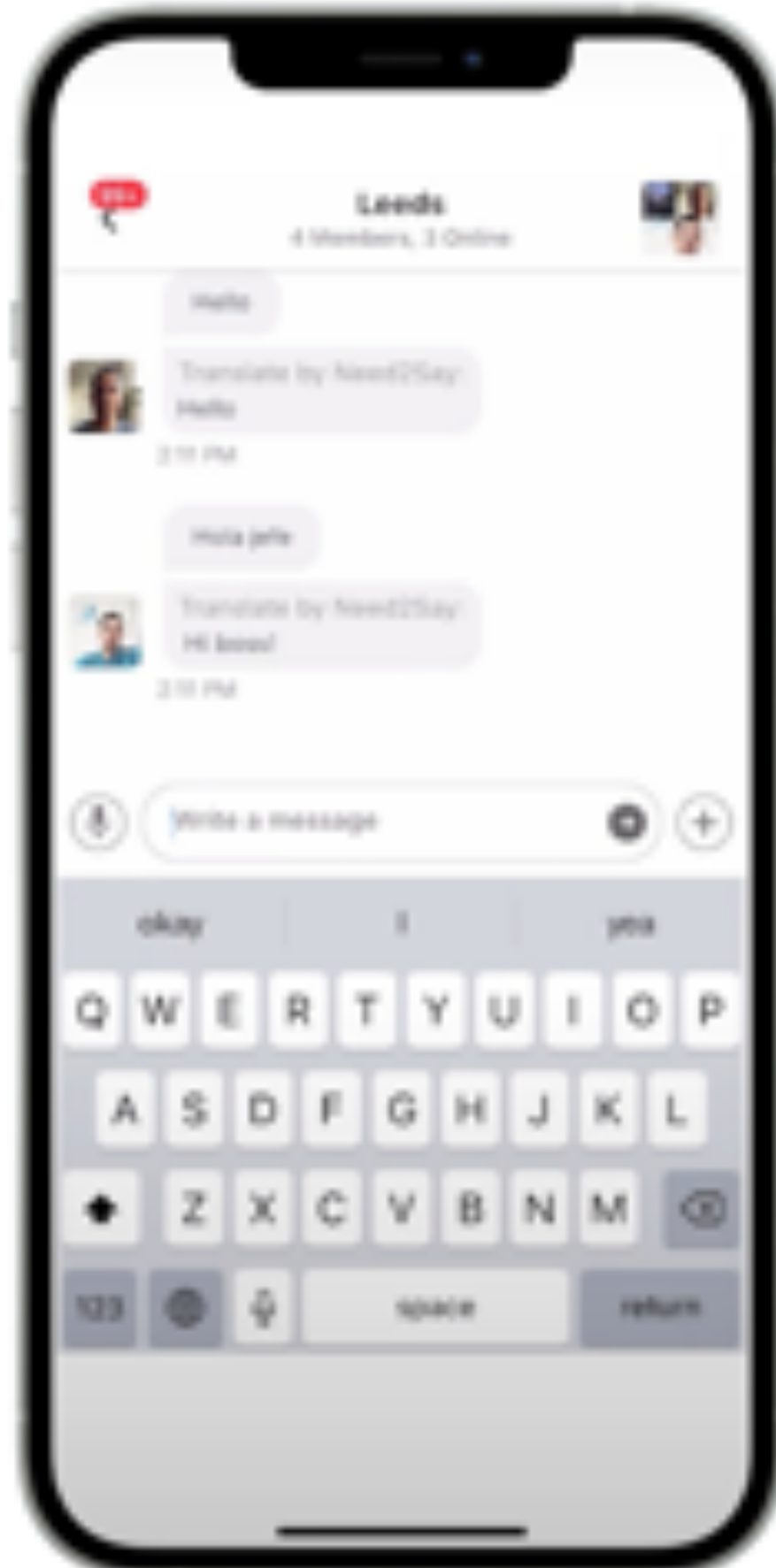
LANGUAGE MODELS (PREDICTING WORDS)

Natural Language Generation
Natural Language Processing
Sentiment Analysis
Speech-to-Text
Text Analysis
Text Summarization
Text-to-Speech
Translation
Voice Recognition

LANGUAGE



Need2Say



VISION

Emotion Detection

Image Analysis

Image Generation

Image Recognition

Facial Recognition

Movement Detection

Video Generation

Video Recognition

There have been heated debates about whether AI-generated images can be protected by copyright because the software creates pictures by incorporating “elements from the vast libraries of digitally available images and artwork” that the AI was trained on, according to the Smithsonian.

VISION (Case in point.)



An electrician, plumber, and HVAC technician in a bar hanging out.



VISION

Teddy bears swimming at the
Olympics 400m Butterfly event.



Imagen

unprecedented photorealism x deep level of language understanding

VIDEO



HOW TO IDENTIFY AN AI USE CASE

Is it data driven?

Is it repetitive?

Is it predictive?

Is it generative?

CHAT GPT: JOB DESCRIPTIONS

The screenshot shows a chat application interface. On the left is a dark sidebar with menu items: '+ New Chat', 'New Chat', 'Clear Conversation', 'Settings', 'Light Mode', and 'English'. The main chat area has a dark background. A user prompt, indicated by a red 'A' icon, asks for a job description for an equipment operator in Maryland with at least 5 years of experience. The AI response, indicated by a green 'G' icon, provides a detailed job description. It starts with an introductory paragraph, followed by a list of responsibilities and a list of requirements.

A Write a smart job description for an equipment operator for a large heavy civil contracting firm in Maryland. Need at least 5 years of experience.

G **Equipment Operator Job Description**

Our large heavy civil contracting firm is seeking an experienced Equipment Operator to join our team in Maryland. With at least 5 years of experience, you will play a crucial role in ensuring that our projects are completed on time, within budget, and with the highest level of safety.

As the Equipment Operator, you will be responsible for operating heavy machinery, including bulldozers, excavators, loaders, and graders. You will also assist with performing routine maintenance on equipment to ensure its reliable performance.

Responsibilities:

- Operate heavy equipment, including bulldozers, excavators, loaders, and graders
- Perform routine maintenance on equipment
- Ensure safe operation of machinery and comply with safety regulations
- Complete assigned tasks within established deadlines
- Provide support to other members of the team when needed

Requirements:

- At least 5 years of experience operating heavy machinery
- Excellent knowledge of safety regulations and procedures

CHAT GPT: JOB DESCRIPTIONS



Add the safety requirements to that job description to include OSHA 30 Hour, Forklift Training, CPR Certified



Safety Requirements:

- Must have completed OSHA 30 Hour training course before commencing work.
- Must have a valid Forklift Training certificate and knowledge on how to operate a forklift.
- Must be CPR Certified and able to render first aid in emergency situations.
- Must adhere to all safety regulations and guidelines as established by the company and OSHA standards.
- Must have knowledge and awareness of safety hazards and be able to identify and report any safety concerns or incidents.



CHAT GPT: TESTIMONIALS



Write a customer testimonial in a Boston Accent showing how happy you are with the HVAC Technician, Steve, who fixed the drain lines that were backed up causing serious water damage to your office building and then provided useful tips on how to prevent this from happening again.



"Let me tell ya, Steve da H-VAC tech-nish-un, he's a real lifesavah! Our office buildin' had a wicked bad problem with drain lines that were backed up, causin' some serious watah damage. But then Stevie boy came along and fixed it up in no time flat! He knew exactly what he was doin' and got right to work. And not only did he fix the problem, but he also gave us some wicked useful tips on how to prevent it from happenin' again. We're so grateful to have Steve on our side, and we wouldn't want anyone else workin' on our HVAC systems. Thanks a million, Steve! You're a true legend!"

TWO PRIMARY WAYS TO GET STARTED

- 1. Problem-Based Model**
- 2. Use Case Model**

PROBLEM BASED MODEL

In the problem-based model, you have a known pain point, a challenge that could be solved more efficiently, and at scale, with AI.

PROBLEM BASED MODEL

PROBLEM: Aggressive Construction Schedule

VALUE: Managing the flow of information and using it to determine what the next steps should be for various site initiatives.

SAMPLE BUSINESS CHALLENGES

Create personalized experiences.

Enhance decision making.

Generate leads.

Grow audience

Improve efficiency.

Increase revenue.

Optimize pricing.

Predict outcomes.

Reduce churn.

Strengthen customer loyalty.

USE BASE MODEL

For most A/E/C firms, the best way to get started with AI will be quick-win pilot projects with narrowly defined use cases and high probabilities of success.

CREATE AN AI SPREADSHEET

Define the task.

Interval (Daily, Weekly, Monthly)

Estimate Hours Per Month

Estimate Monthly Cost

Create a value to Intelligently Automate

Create a value on your ability to Intelligently Automate

"It's not about how advanced the AI is. It's about how much efficiency and performance can improve through intelligent automation of processes and tasks."

**WHAT WILL THE MACHINE DO?
WHAT WILL THE CONTRACTOR DO?**

CONTRACTOR-TO-MACHINE (C2M) SCALE



LEVEL 1

All human, all of the time.
All automation is manual.



LEVEL 2

Limited intelligent automation.
AI is largely reliant on human inputs and oversight.



LEVEL 3

Half & Half
System can manage most aspects of the use case, but still requires human inputs and oversight.



LEVEL 4

Predominately AI powered. The system can operate without human inputs or oversight in select conditions.



LEVEL 5

Full Autonomy.
System can perform at our above human level without inputs or oversight. The contractor defines the desired outcome, and the machine does all of the work.

A little bit of AI can go a long way to reduce costs and drive revenue when using the right data and right use case.

You don't need to go from all manual to fully autonomous to see massive returns.

AI LEARNING JOURNEY: PERSONAL & BUSINESS TRANSFORMATION

PERSONAL

- Develop an understanding of AI.
- Discover AI use cases and technologies.
- Improve productivity, creativity, and performance.
- Drive change in my organization.
- Advance my career.

BUSINESS

- Educate and train my team.
- Discover AI use cases and technologies.
- Improve my team's productivity, creativity, and performance.
- Create a more personalized customer experience.
- Reduce costs and accelerate revenue growth.

PATH TO AI MASTERY



PLATFORMS





how would you define ChatGPT?

ChatGPT is an artificial intelligence language model developed by OpenAI. It is based on the GPT-3.5 architecture, which stands for "Generative Pre-trained Transformer 3.5." GPT-3.5 is a state-of-the-art model that has been trained on a massive amount of text data from the internet, allowing it to understand and generate human-like responses to various prompts.

ChatGPT is designed to engage in conversational interactions with users, providing answers to questions, engaging in discussions, and offering suggestions or recommendations. It uses deep learning techniques to analyze and understand the context of a conversation, enabling it to generate coherent and contextually appropriate responses.

One of the notable features of ChatGPT is its ability to generate text that is fluent, creative, and contextually relevant, making it useful for a wide range of applications such as customer support, content generation, and language assistance. While it can often provide accurate and helpful responses, it's important to note that ChatGPT's responses are generated based on patterns and information present in its training data, and it may not always have access to the most up-to-date information or possess real-time understanding of the world.

CHAT GPT


Description

ChatGPT is designed to engage in conversational interactions with users, providing answers to questions, engaging in discussions, and offering suggestions or recommendations. It uses deep learning techniques to analyze and understand the context of a conversation, enabling it to generate coherent and contextually appropriate responses.

[Link](#)



Bard

at Google 

GOOGLE BARD

Description

Bard is an experiment based on this same technology that lets you collaborate with generative AI. As a creative and helpful collaborator, Bard can supercharge your imagination, boost your productivity, and help you bring your ideas to life—whether you want help planning the perfect birthday party and drafting the invitation, creating a pro & con list for a big decision, or understanding really complex topics simply.

[Link](#)



BLACKSHARK

Description

The blackshark.ai geospatial platform extracts insights about the planet's infrastructure from current satellite and aerial imagery via machine learning at global scale. Missing attributes are enriched by AI to provide a photorealistic, geo-typical, or asset specific digital twin. Results can be used for visualization, simulation, mapping, mixed reality environments, and other enterprise solutions. Massive cloud-computing capability enables rapid updates at any time.

[Link](#)

[Video Link](#)

BLACKSHARK





SLATE AI

Description

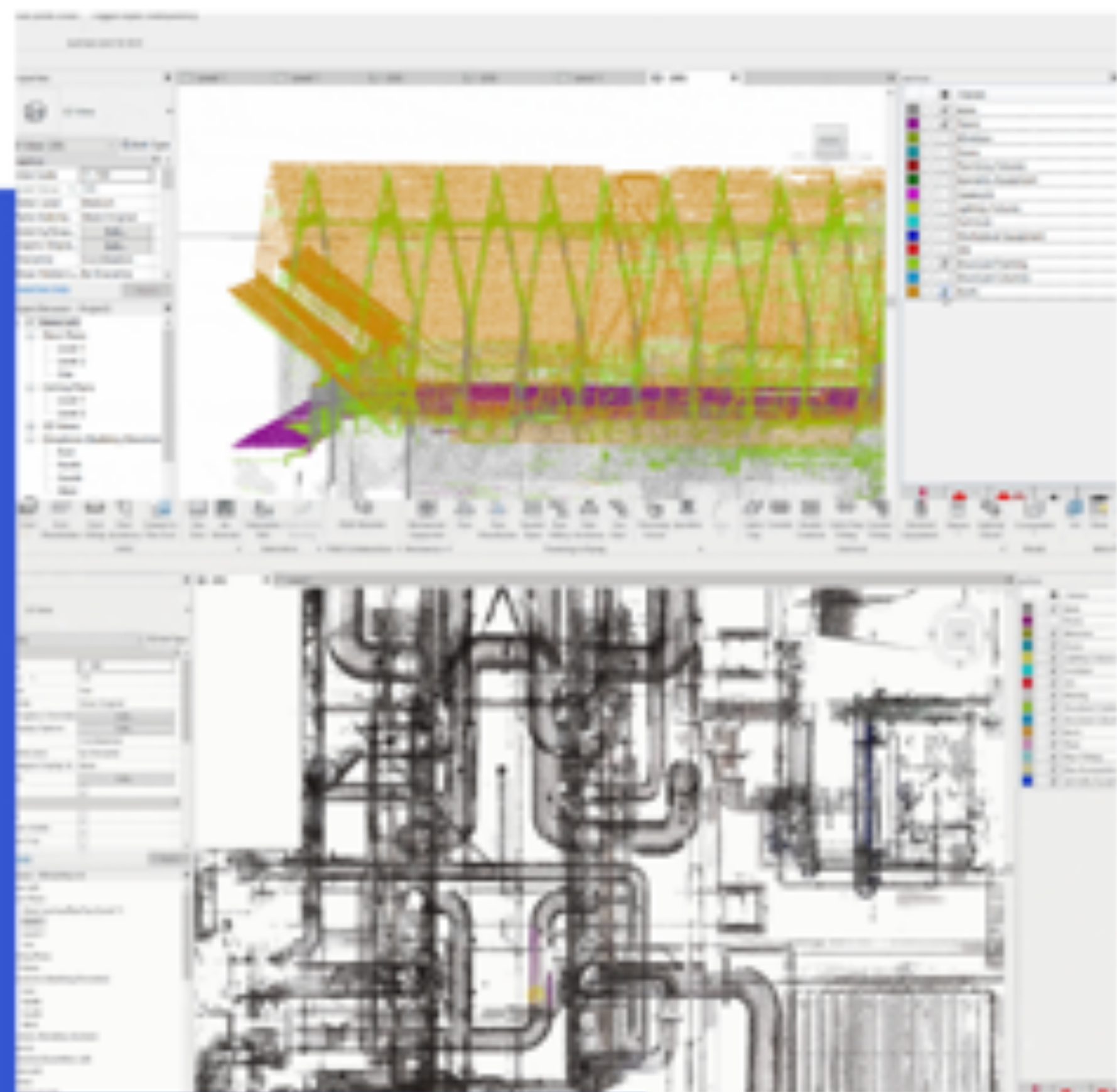
Information is dynamically provided to every person at exactly the point they need with the context required to exponentially improve the quality and speed of decision making across projects and the entire portfolio.

[Link](#)



DATA ANALYSIS





AURIVUS

Description

Aurivus provides this intelligent tool and makes scan-to-BIM faster by assigning BIM attributes directly to the point cloud of the objects. Modelers can use it to reach their goal much faster.

[Link](#)



Microsoft

MICROSOFT COPILOT

Description

Introducing Microsoft 365 Copilot — your copilot for work. It combines the power of large language models (LLMs) with your data in the Microsoft Graph and the Microsoft 365 apps to turn your words into the most powerful productivity tool on the planet.

[Link](#)





ARUP NEURON

Description

Neuron is an app that integrates our insights into the built environment with emerging digital technologies into a single platform. It uses 5G and the Internet of Things to gather real-time 'sense data' from equipment and systems. It uses Building Information Modelling (BIM) to display these complex data sets through a cloud-based, centralised management console. Neuron's 'brain' uses artificial intelligence and machine learning to analyse, optimise and automate operations.

[Link](#)

DESIGN DEVELOPMENT





CITYPLAIN

Description

CITYPLAIN is a cloud computing tool for urban planning that tackles the global need for affordable housing within city extensions. It allows comprehensive scenario comparison and cross-team collaboration to improve decision making processes.

[Link](#)



HYPAR

Description

HyparSpace is a new workflow for space planning, built with Hypar.

Create test fits by drawing your floor plate, tracing over an image, or importing from DXF, Revit, or Rhino. Create space layouts including open office areas, meeting rooms, employee lounges, and much more, right out of the box.

[Link](#)

[Video Link](#)



QBIQ

Description

Qbiq's planning solution delivers the next generation of test fits, generating layout plans customized for any space and any tenant in less than 24 hours. By accelerating turnaround at a fraction of the alternative cost, qbiq is transforming real estate layout planning for landlords, brokers, and architects.

[Link](#)



SWAPP

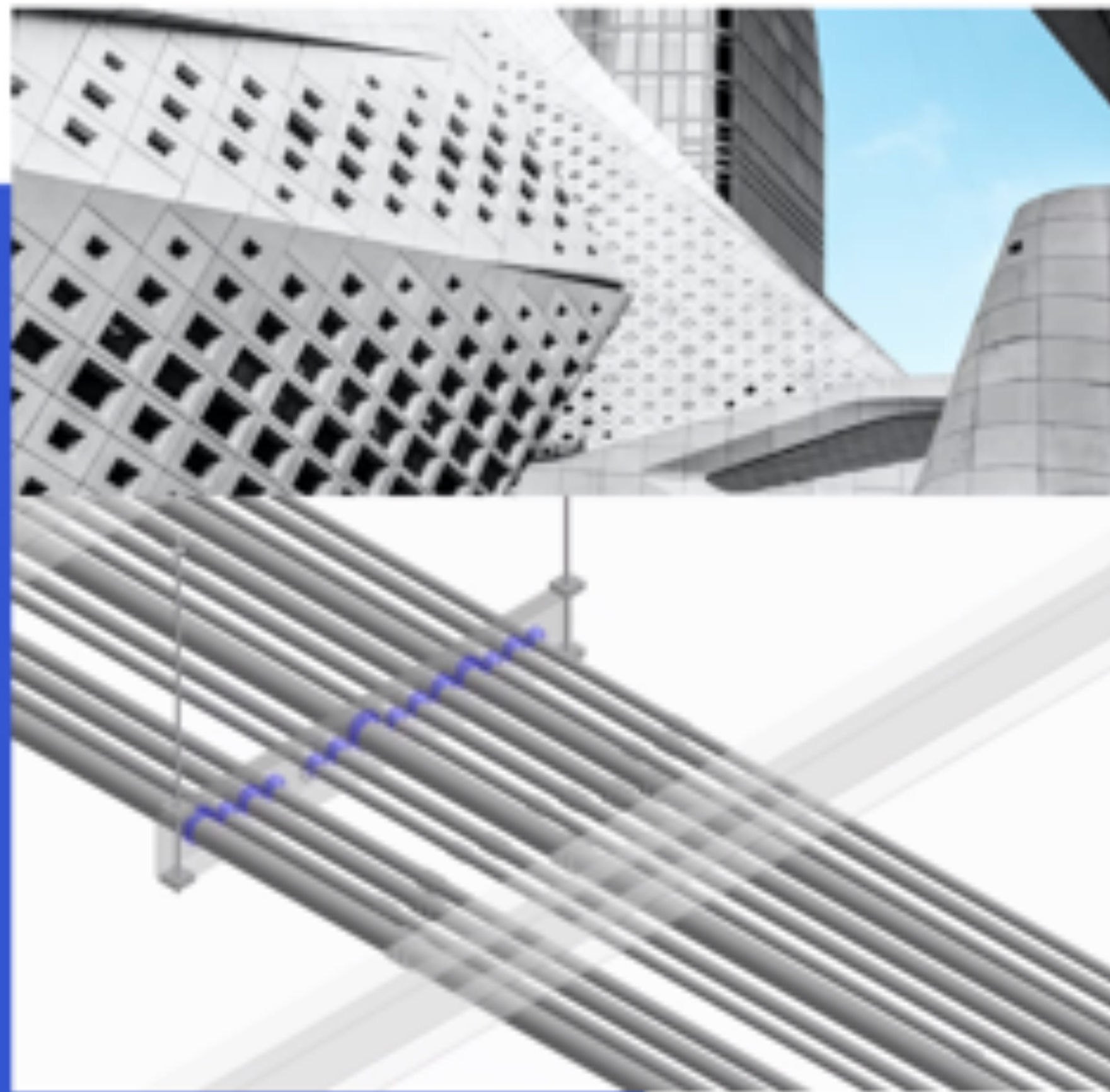
Description

SWAPP frees you from the tedious work of creating an endless number of drawing sheets. As a result of automating the construction documents phase, the project's duration and manual labor hours are significantly reduced. Despite record-breaking construction demands, architecture firms may not be in a position to grow their portfolio. It has become difficult to retain experienced architects. By automating the most time-consuming and tedious planning tasks, your firm will be able to minimize overtime hours, increase retention and handle more projects with an efficient work process.

[Link](#)

DESIGN SPECIFICATION





AUGMENTA

Description

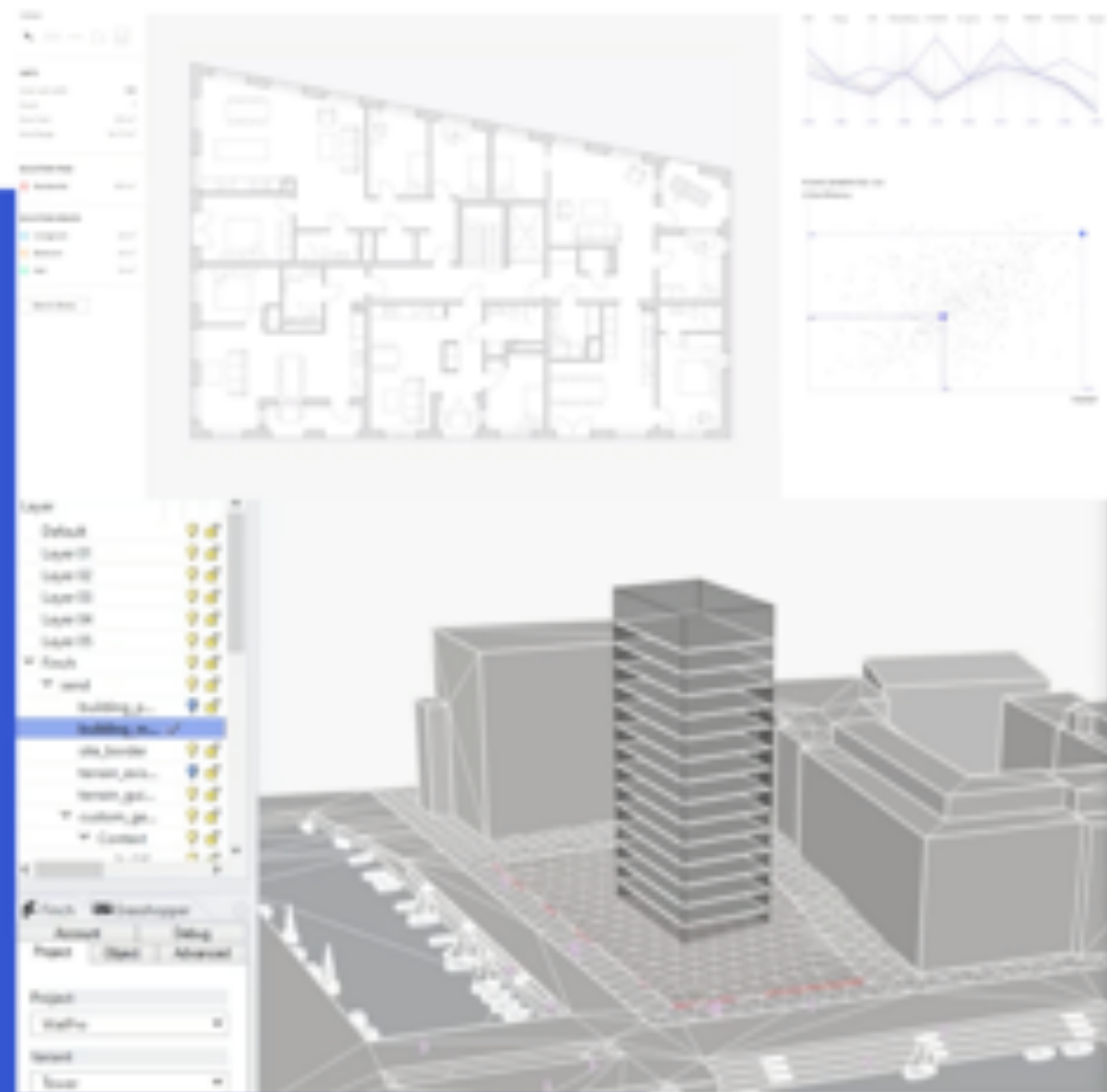
A fully automated building design platform in the cloud, built from the ground up around Generative AI. It creates highly cost, labor, time and energy efficient designs that are fully code compliant, error-free and constructible.

It enables a fundamentally new design process that empowers the construction industry to design and build sustainable housing, cities, and infrastructure at scale.

[Link](#)

AUGMENTA



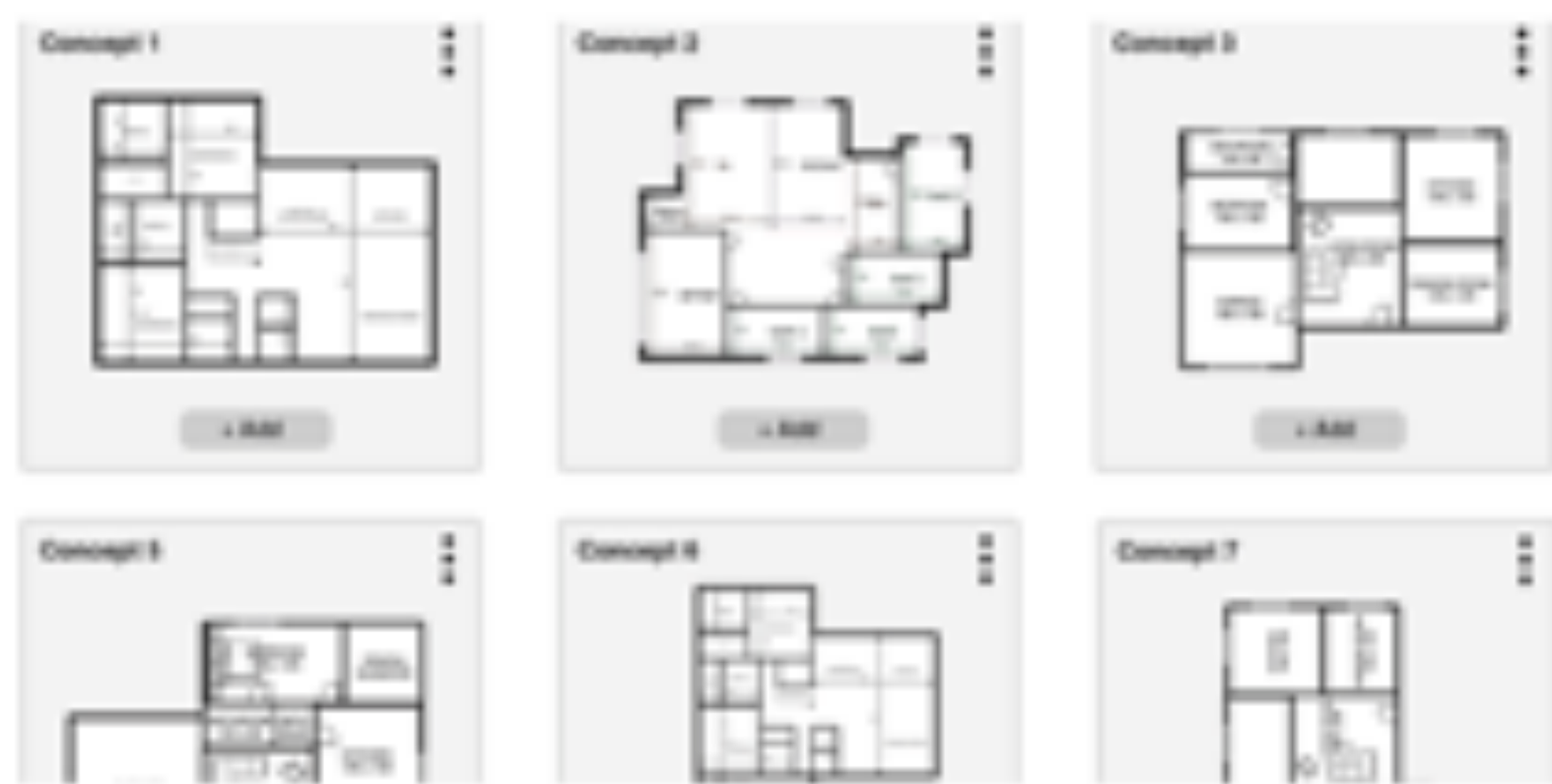


FINCH

Description

Optimize building design with AI and graph technology. Get immediate feedback on performance, detect errors and find optimal solutions in the early stages of design. Get flow in a tool that is focused on buildable exploration. Move freely between massing, setting programs, story design and space planning. Compare variants in seconds. Automatically fill stories with plans.

[Link](#)



MAKET AI

Description

Stop spending months on schematic designs. Input the constraints through parameters or natural language (coming soon) and generate hundreds of variations, instantly. Specify room dimension & adjacency constraints. Generate floorplans instantly and export designs to .DXF

[Link](#)



STRUCTURAL DESIGN





weight_S355	cost	size	carbon
UC204x204x112	UC204x204x112	UC204x204x112	UC204x204x112
S40032 - S40	S40032 - S40	S40032 - S40	S40032x40 - S40



Options comparison

AEC FORWARD

Description

Mine your past drawings using machine learning. Unlock your past data and re-use design. Understand sustainability drivers. Get instantaneous simulation results. Our bots learn from past simulations. A new approach for FEM and bioclimatic analysis.

[Link](#)

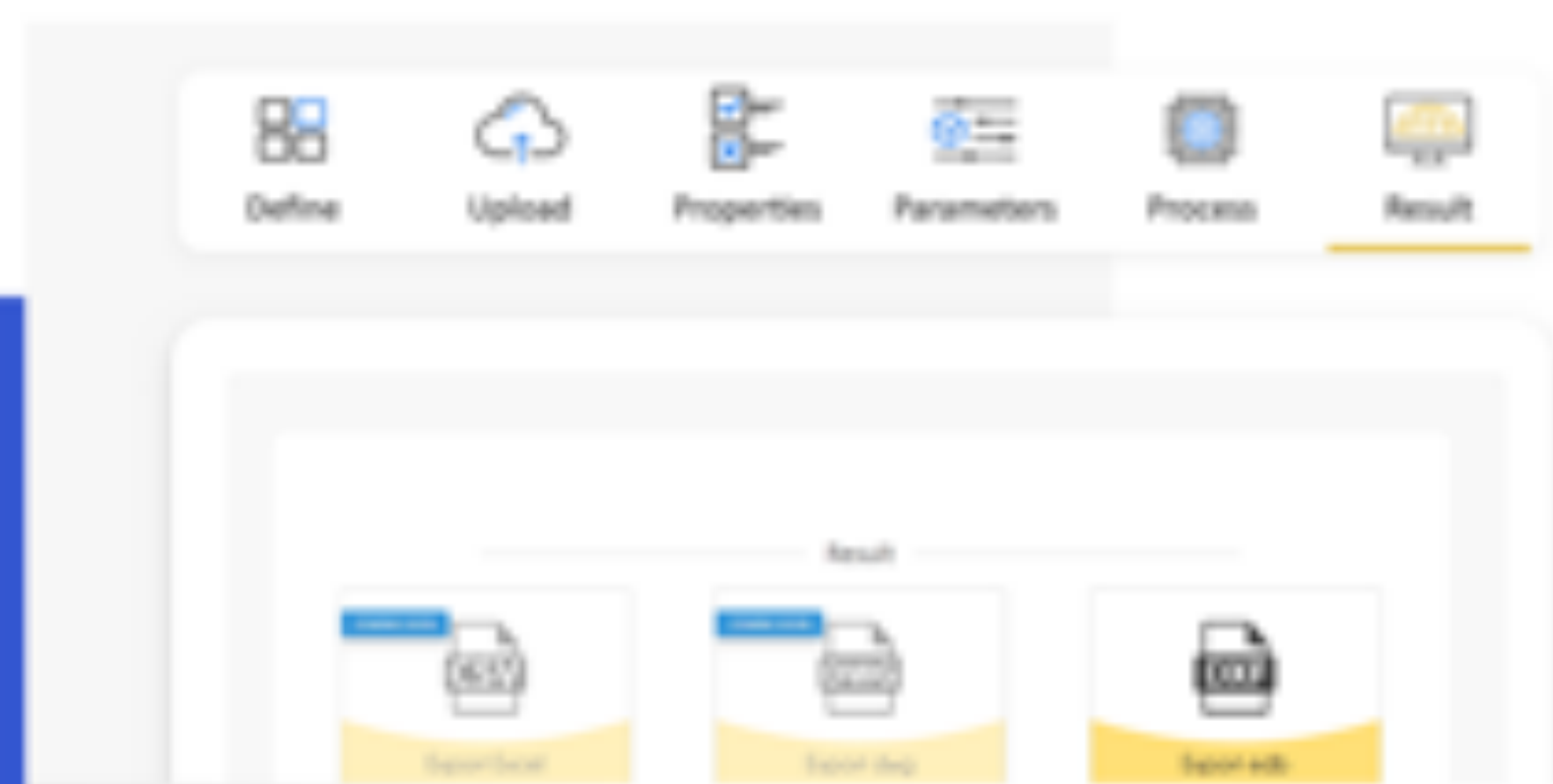


PATHW

Description

Pathw.ai is the platform for all those who want to detail steel structures smartly. We help you work quicker through the engineering data, suggest which connections you can possibly reuse and help keep an overview on the whole process so you can go from design to production safer, faster and better.

[Link](#)



Residential

Material : Concrete

Area (m²) : 22000

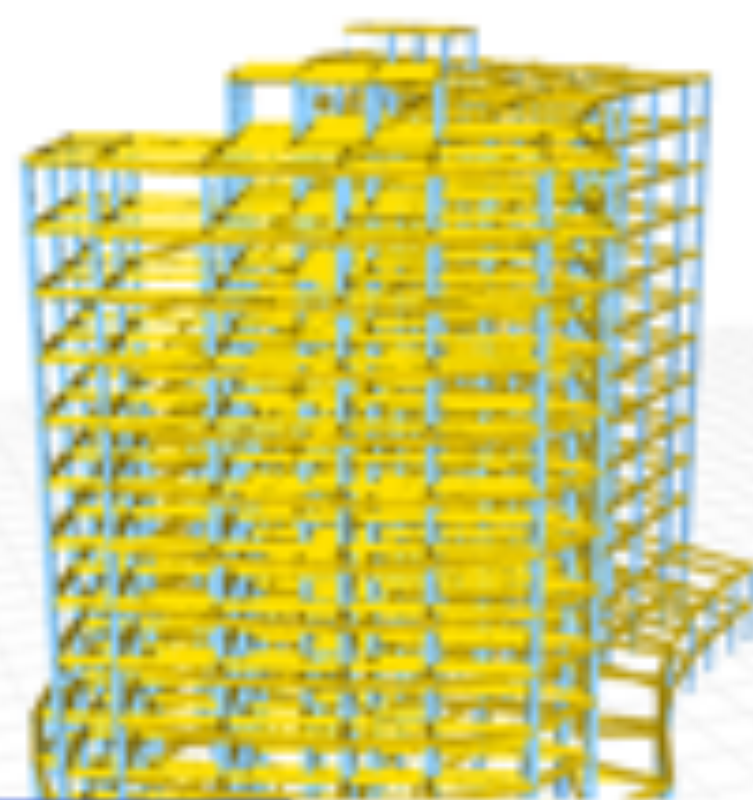
Cost Reduction : \$250,000

Steels Weight (Tonne)

Before Optimization : 1350

After Optimization : 1100

Saved : %18.5



STRUCTURE PLUS

Description

Supports steel and concrete structures. Runs only on your browser and it is easy to use. Compatible with Autodesk. Import from and Export to CSI ETABS and SAP2000

[Link](#)

SAVE THE DATE

August 22 9:00 AM EST

The Morning Huddle: LinkedIn Live
Guest: Stjepan Mikulić, AEC AI HUB



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