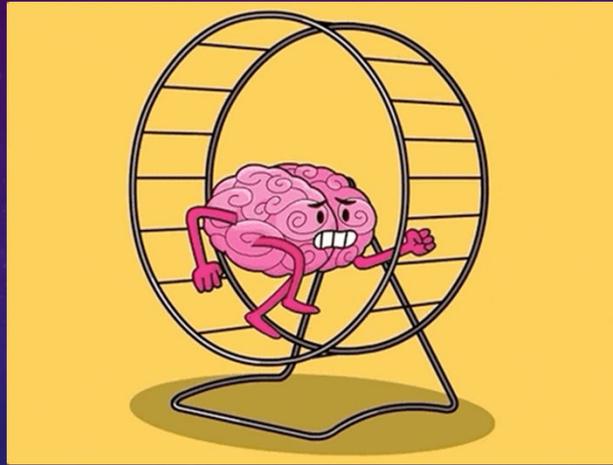


*Presented at the FIG Working Week 2025
6-10 April 2025 in Brisbane, Australia*

WHY ARTICULATE THE VALUE OF AI IN GEOSPATIAL?

NIGEL CONOLLY

THE PROBLEM



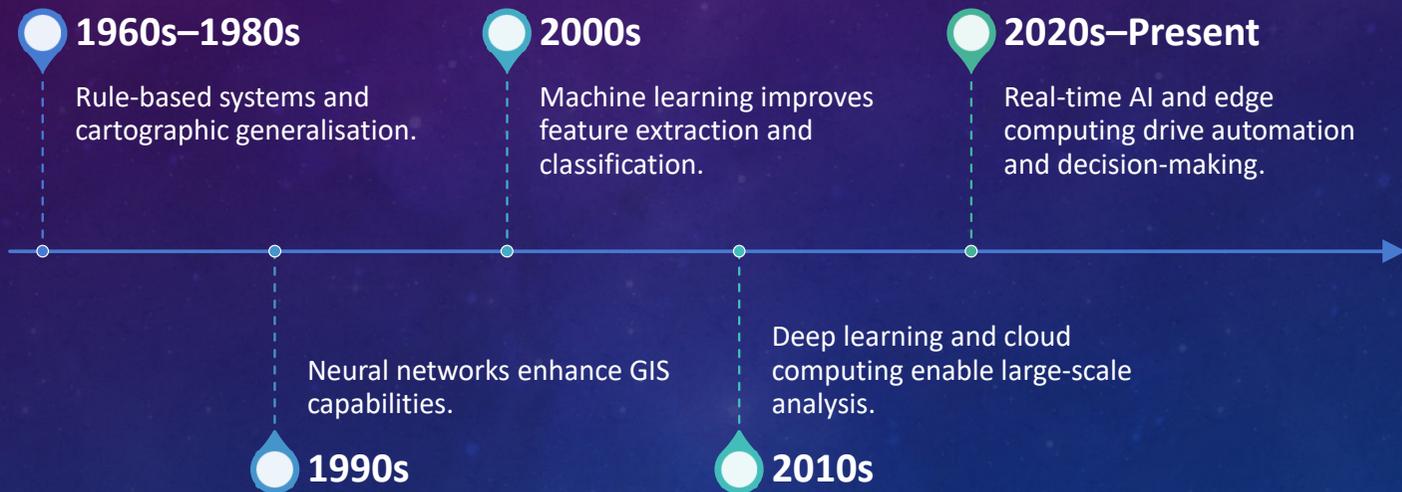
- The geospatial industry is evolving rapidly, yet many professionals adhere to traditional methods.
- Failure to adapt risks irrelevance in an AI-driven landscape.

THE OPPORTUNITY



- AI integration enhances professional impact and unlocks new opportunities.
- Those who embrace AI can increase their value by up to 600%.

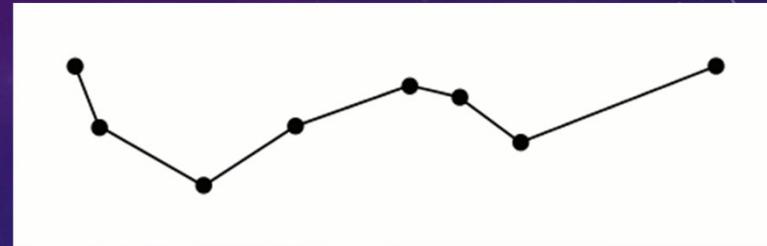
HISTORICAL DEVELOPMENT OF AI IN GEOSPATIAL



1960S

Line Simplification

Douglas-Peucker Algorithm (1967) – Line Simplification



Polygon Merging

“This operation, identified by Imhof in 1937,^[1] involves combining neighboring features into a single feature of the same type, at scales where the distinction between them is not important.”

<https://www.e-periodica.ch/digbib/view?pid=ghl-002:1936:37#60>



1970-80S

Consulting business Environmental Systems Research Institute established 1969

1981 released their first product: ARC/INFO, including tools such as PIOS, GRID and GRID/TOPO.



1990S

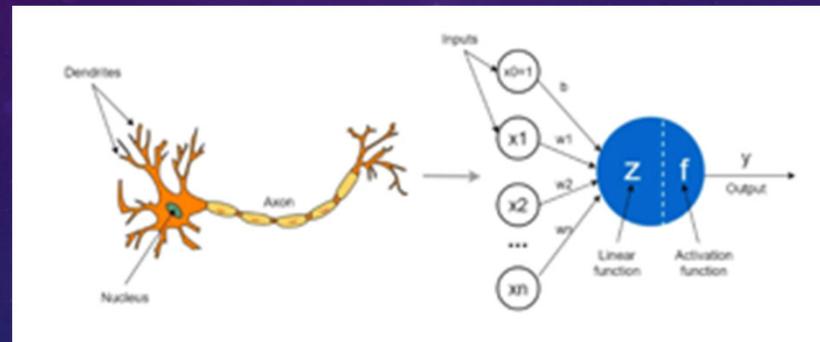
Artificial Neural Networks

- eg: Supervised Classification



2000-10S

Machine learning & Convolutional Neural Networks

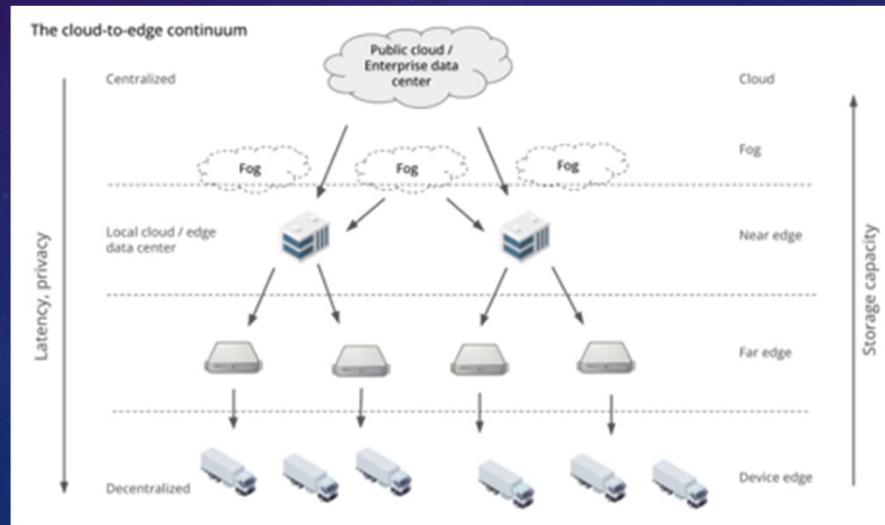
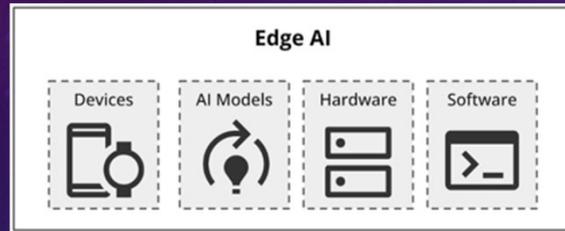


“A Convolutional Neural Network (CNN) is a type of artificial neural network specifically designed for image analysis, excelling at identifying patterns within images by breaking them down into smaller parts and extracting features like edges, shapes, and textures, allowing it to perform tasks like image recognition, object detection, and image segmentation with high accuracy; making it a powerful tool in computer vision applications like facial recognition, self-driving cars, and medical imaging analysis.”

[https://insightsimaging.springeropen.com/articles/10.1007/s13244-018-0639-9#:~:text=3D\)%2DCNN.-,Convolution%20layer,convolution%20operation%20and%20activation%20function](https://insightsimaging.springeropen.com/articles/10.1007/s13244-018-0639-9#:~:text=3D)%2DCNN.-,Convolution%20layer,convolution%20operation%20and%20activation%20function)

2020S

Edge Computing & real-time AI



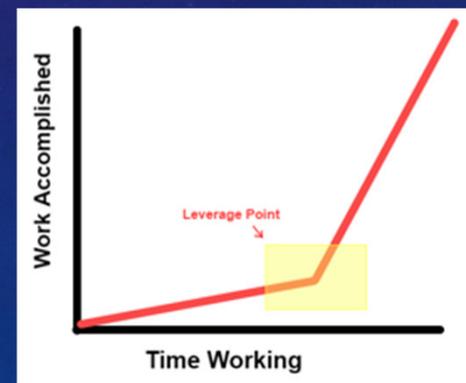
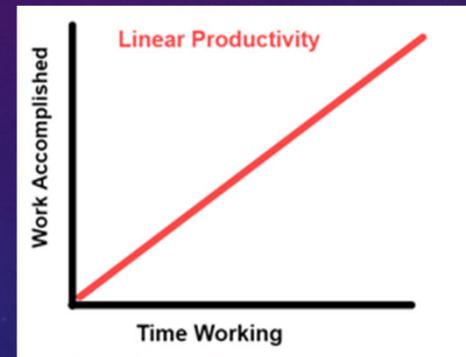
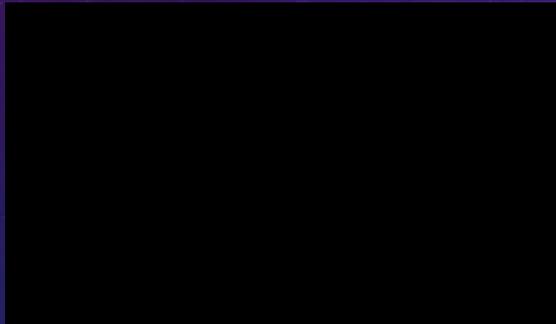
AI IN GEOSPATIAL TODAY



BOOST YOUR PRODUCTIVITY BY 600%

Time from months to minutes.

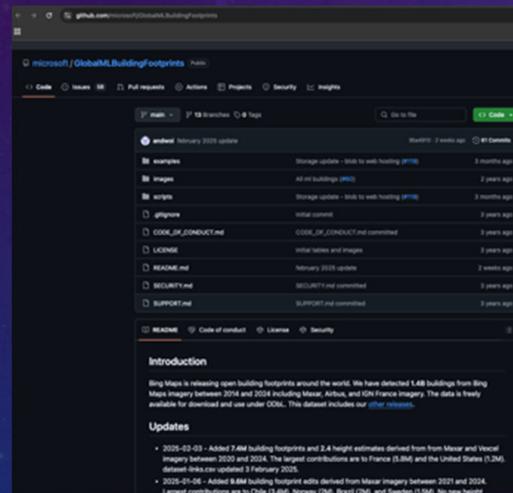
Eg: 6 months to 10 minutes



AI IN GEOSPATIAL TODAY

Feature Detection:

AI identifies structures from satellite imagery. Eg: Microsoft Global Building Footprints



AI IN GEOSPATIAL TODAY

AI for Retail & Site Selection:
AI automates feasibility analysis.



<https://www.mapzot.ai/>

Above Avg. Locations **Bojangles**

National **State** Local

Rank	Locations	Distance	Visits
7	321 Greenville Blvd SE, Greenville, NC	0.0 mi	2.4K
1	3775 M.L.K. Jr Hwy, Greenville, NC	4.11 mi	9.5K
2	3411 Cooperative Way, Farmville, NC	13.05 mi	6K
3	3210 E 10th St, Greenville, NC	2.8 mi	5.7K
4	112 NC-102, Ayden, NC	1.54 mi	3.5K
5	3701 S Memorial Dr, Greenville, NC	2.08 mi	2.5K

More Places



VALUE PROPOSITIONS OF AI IN GEOSPATIAL

VALUE PROPOSITIONS OF AI IN GEOSPATIAL

Precision Agriculture:

AI increases yields by 30% while reducing water usage.



VALUE PROPOSITIONS OF AI IN GEOSPATIAL

Insurance:

AI improves loss ratios by 5% and increases premiums by 15%.



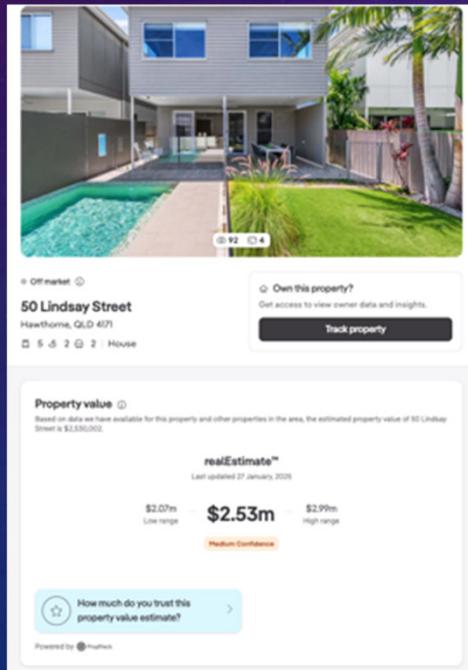
<https://www.insurancebusinessmag.com/us/news/property/when-ai-meets-roi-how-datadriven-drones-and-declines-are-shaking-up-property-insurance-502929.aspx>

<https://www.suncorpgroup.com.au/news/news/DMC-technology#:~:text=Suncorp's%20ability%20to%20utilise%20and,back%20into%20their%20homes%20sooner>

VALUE PROPOSITIONS OF AI IN GEOSPATIAL

Real Estate:

AI enhances property valuation accuracy (30%) and speeds up transactions (40%).



Off market

50 Lindsay Street
Hawthorne, QLD 4171
5 • 2 • 2 • House

Own this property?
Get access to view owner data and insights.
Track property

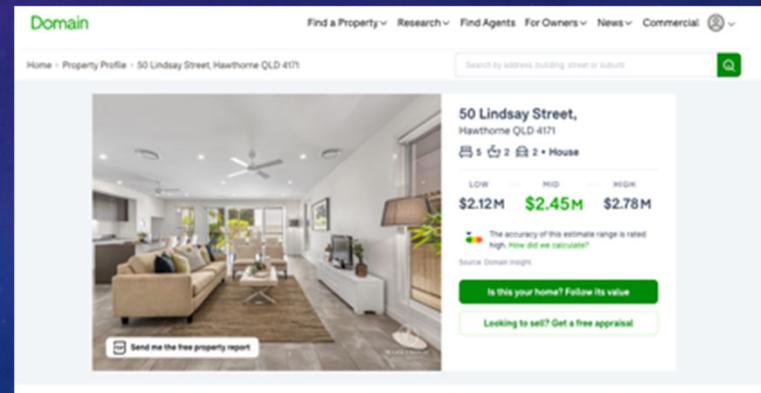
Property value ⓘ
Based on data we have available for this property and other properties in the area, the estimated property value of 50 Lindsay Street is \$2,530,000.

realEstate™
Last updated 27 January, 2025

\$2.07m Low range **\$2.53m** \$2.99m High range
Medium Confidence

How much do you trust this property value estimate? >

Powered by realEstate™



Domain

Find a Property Research Find Agents For Owners News Commercial

Home - Property Profile - 50 Lindsay Street, Hawthorne QLD 4171

Search by address, building, street or suburb

50 Lindsay Street,
Hawthorne QLD 4171
5 • 2 • 2 • House

LOW MID HIGH
\$2.12M **\$2.45M** **\$2.78M**

The accuracy of this estimate range is rated high. How did we calculate?
Source: Domain Insights

Is this your home? Follow its value

Looking to sell? Get a free appraisal

Send me the free property report



CONCLUSION

Early Stage Technology

AI in geospatial resembles the early internet. We're just seeing the first glimpses of potential.

First-Mover Advantage

Early adopters gain competitive edges. They establish industry leadership positions.

Essential Evolution

Embracing AI isn't optional. It's necessary for continued relevance in geospatial fields.

Thankyou ... 😊 ... Nigel Conolly