



**Introducing:**

# **SPATIAL IQ AI**

## **Technical Documentation**

Computer vision platform that converts room photos into precise measurements, detects furniture automatically, and generates professional space utilization reports in minutes.

**Developed By: [thirdeyedata.ai](https://thirdeyedata.ai)**



# Overview

## About the Solution

Spatial IQ AI is an advanced computer vision platform designed to eliminate manual space measurement across properties, warehouses, and facilities — replacing tape measures and visual estimates with automated AI-powered precision.

Built on YOLOv8 and YOLOv10 with OpenCV image processing, the platform detects furniture and objects from room images, converts pixel data into real-world dimensions, and calculates area utilization automatically — generating professional PDF reports in under 2 seconds.



# Business Problem / Challenges

In real estate, construction, and facilities management, a recurring challenge arises when measuring and documenting spaces across large property portfolios:

Manual space measurement is slow, taking hours per room and delaying planning cycles

Teams relying on tape measures and visual estimates introduce costly errors and inconsistencies

Manual processes cannot scale across large property portfolios without significant labor costs

Generating professional measurement reports manually is time-consuming and inconsistent



# Key Capabilities

YOLOv8 identifies chairs, sofas, tables, beds with 97.2% accuracy

Reference object calibration converts pixels to real-world feet/inches

Calculates furniture footprints, room coverage, and space utilization

Professional reports with annotated images and measurement tables

Annotated images with bounding boxes and dimension overlays

Process multiple room images for entire property portfolios



# Value Proposition

01

Time Savings : 80% reduction in measurement time — hours reduced to minutes per room

02

Cost Savings: \$15K+ monthly savings by eliminating manual measurement labor costs

03

Accuracy :97.2% detection accuracy with  $\pm 2\%$  measurement precision across all properties

04

Scale 50+ properties processed per month with batch portfolio capabilities

05

Processing Speed: Under 2 seconds to detect, measure, and analyze any room image

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# Primary Tools & Technologies

01

## AI Models

YOLOv8 and YOLOv10 with OpenCV 4.10 and PIL for furniture detection and image processing.

02

## Backend APIs

FastAPI and Python 3.12 with NumPy and SciPy for measurement calculations and scaling.

03

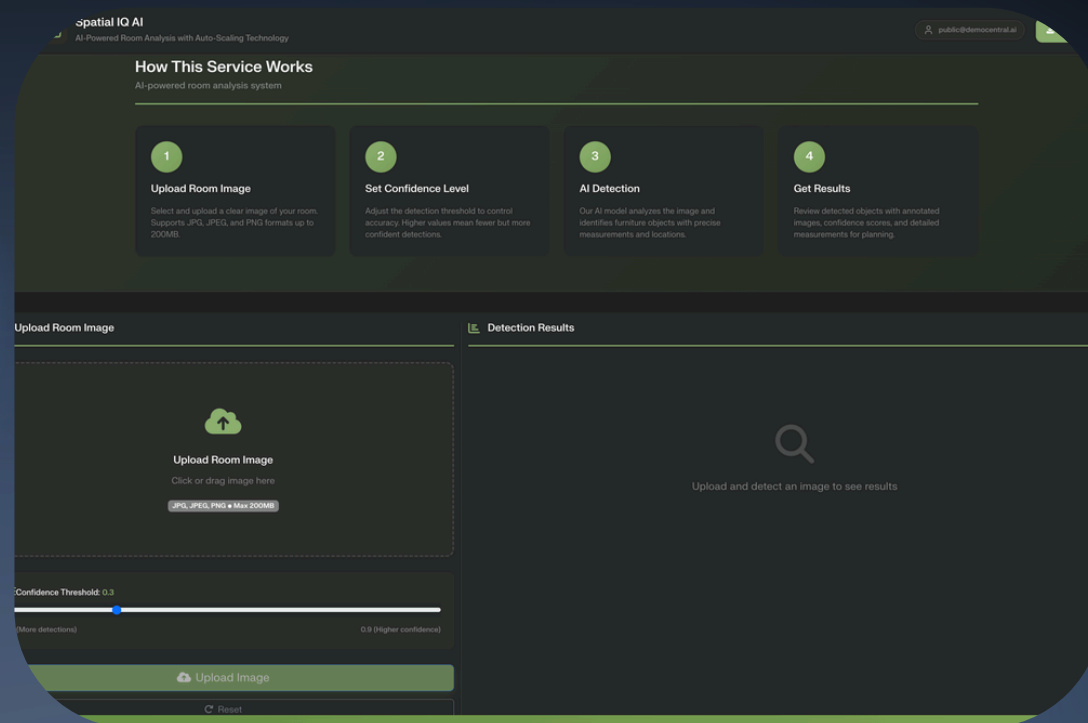
## Reporting

ReportLab and PDFKit with Matplotlib and Plotly for PDF report generation and visualization.

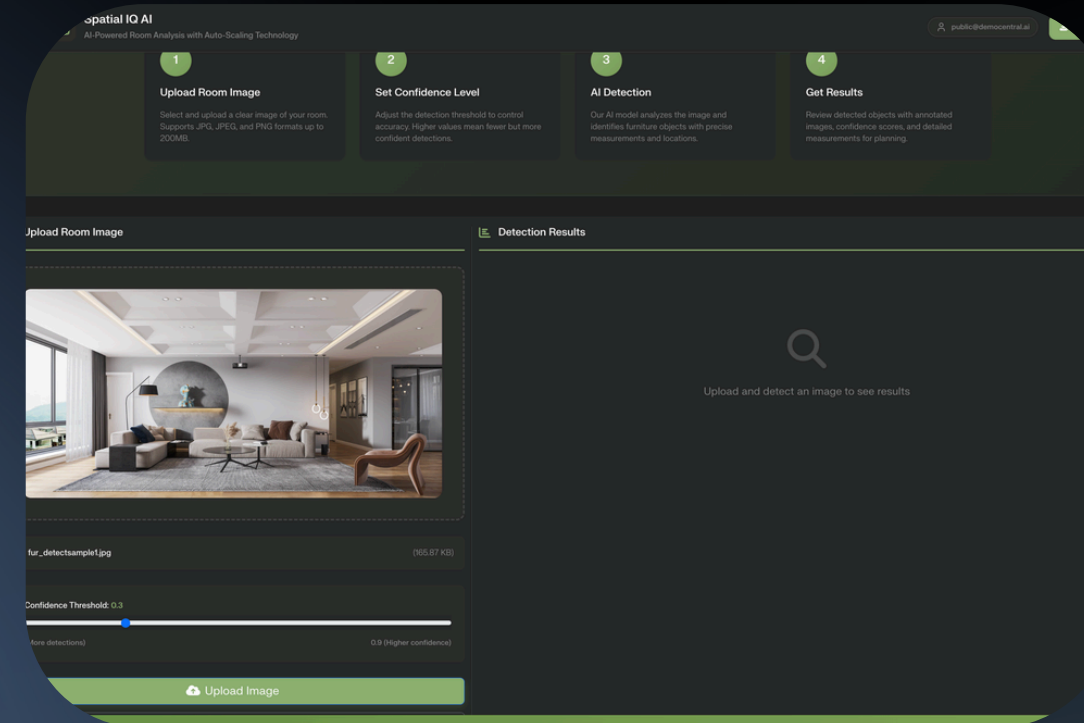


# Solution Glimpses

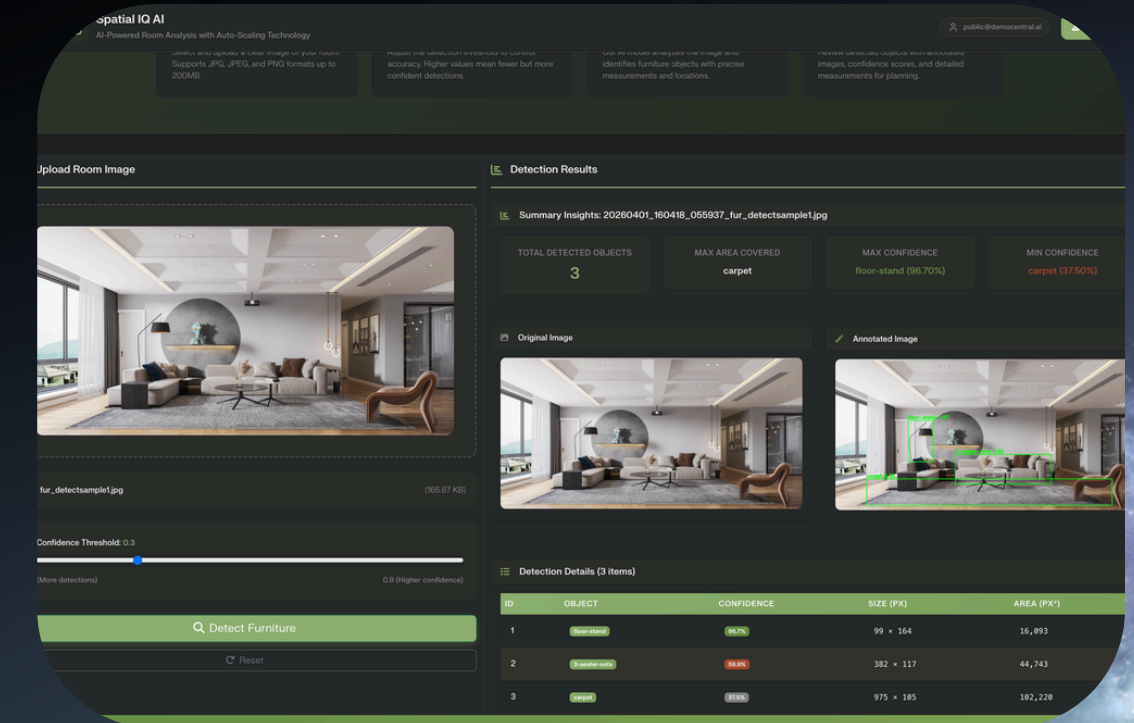
## Image Upload



## Threshold Setting



## Furniture Detection



Watch the full video on [Vimeo.com](https://vimeo.com) or scan here to watch:



# Request a Demo

If you find this solution relevant to your use case, please feel free to try this prototype or request a custom demo.



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