CITREE

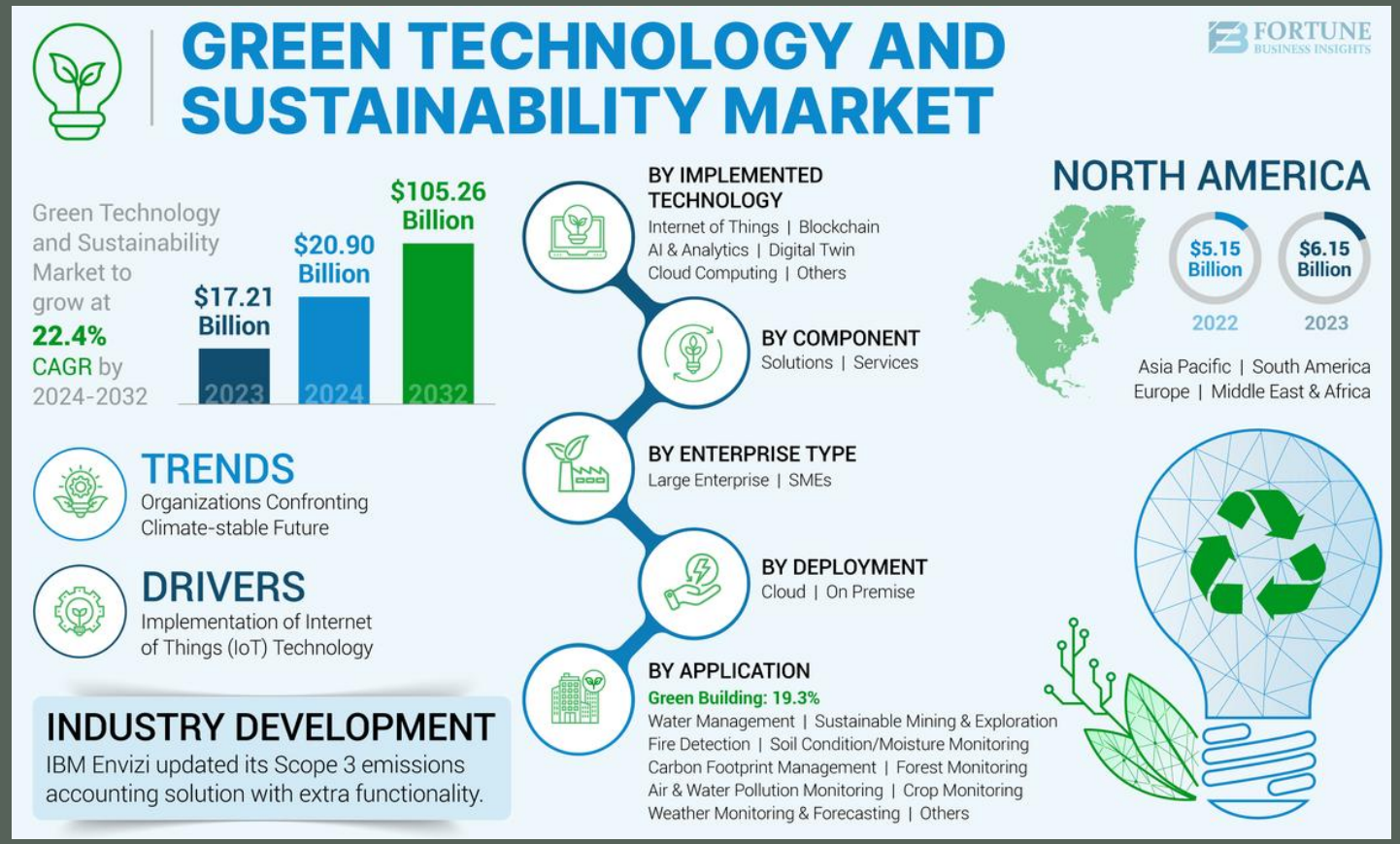
A TREE PLANTING ASSISTANT APP

CITREE: THE BUSINESS

THE MARKET

GREEN TECHNOLOGY AND SUSTAINABILITY MARKET

Opportunities: Growing Demand for Climate Solutions & Increased Funding and Investments



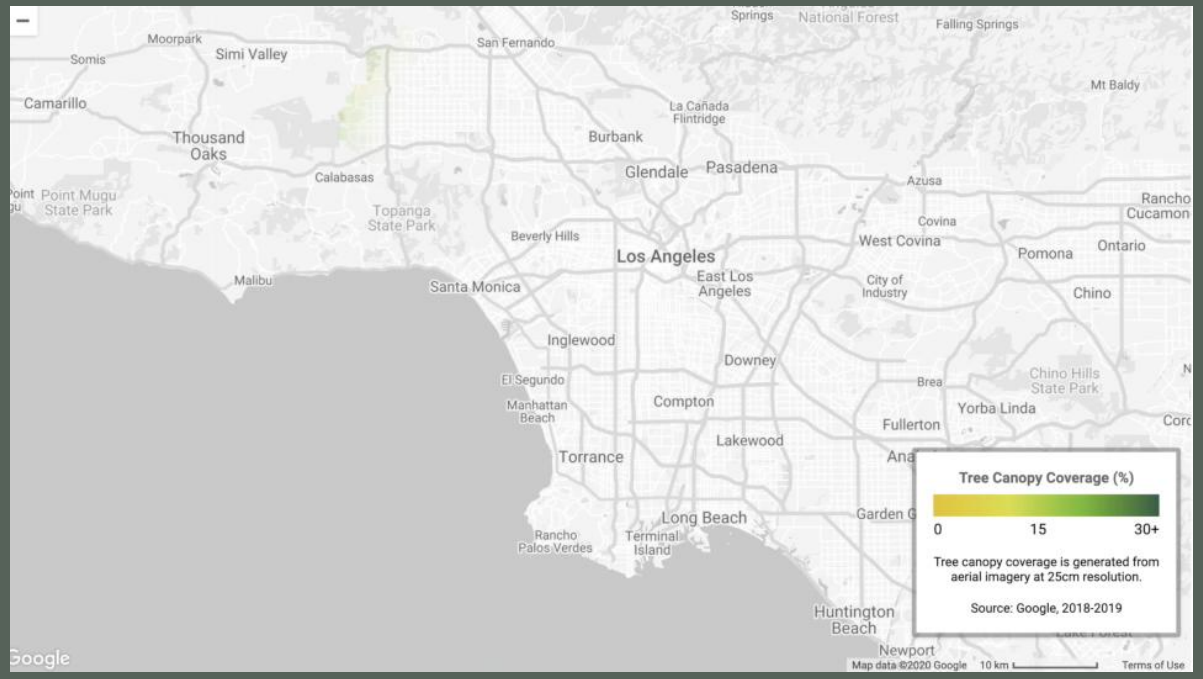
ADDRESSED NEEDS

Urban Heat Island Mitigation

Climate Change Mitigation

Urban Greening and Green Space Expansion

Community Engagement in Environmental Action



COMPETITORS

Google's Tree Canopy Lab uses satellite imagery and AI to map urban tree coverage, helping city planners identify heat islands and prioritize areas for greening initiatives.

CLIENT PERSONA

Tech and Sustainability Enthusiast

Community Oriented

Unpleased with the lack of green spaces in his town and the extreme heat

Needs accessible solutions for climate action and access to a like-minded community

Wants to contribute to Urban Greening, track personal impact and encourage others

Uncertain about his impact

OUR BUSINESS PLAN

KEY ACTIVITIES

Develop an MVP, establish a strong presence online, secure initial partnerships, launch and collect feedback

CUSTOMER RELATIONSHIPS

Periodic social media engagement about special events and partnerships via platforms like Instagram

KEY RESOURCES AND COST STRUCTURE

Large volume of satellitary data and computing power for servers and AI training. Additional costs: team pay, marketing costs

REVENUE STREAMS

Subscription based

Free Tier: Basic features such as tree tracking and limited heat island scans.

- Monthly Premium: €5
- Annual Premium: €50

OUR BUSINESS PLAN

KEY PROPOSITIONS

Empowering users to make a change for the better

Engaging Community Building

Simplifying Environmental Action

Promoting Long-Term Sustainability

CITREE: THE TECHNOLOGY

MAIN APP FEATURES

Urban Heat Island Detection (Targets)

Target Management

Planted Trees Visualization & Impact Tracking

TECH STACK

BACKEND

+

PyTorch

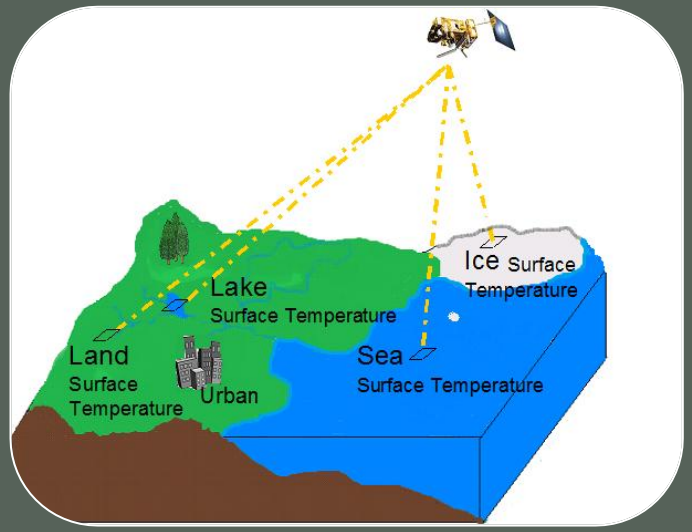
Flask

FRONTEND

+

A.I. MODEL DETAILS

WHY LAND SURFACE TEMPERATURE?



Agriculture
Better crop management and field health monitoring

Disaster Management
Early warning system for potential disasters

Climate Studies
Identifying and tracking temperature trends

Urban Planning
Understanding heat distribution in urban areas

DATA REQUIREMENTS & INPUTS

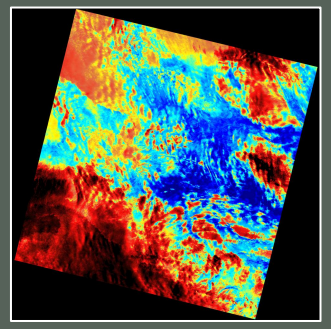
Band 4 (Red)
For surface reflectance measurements

Band 5 (Near-Infrared)
For surface reflectance measurements

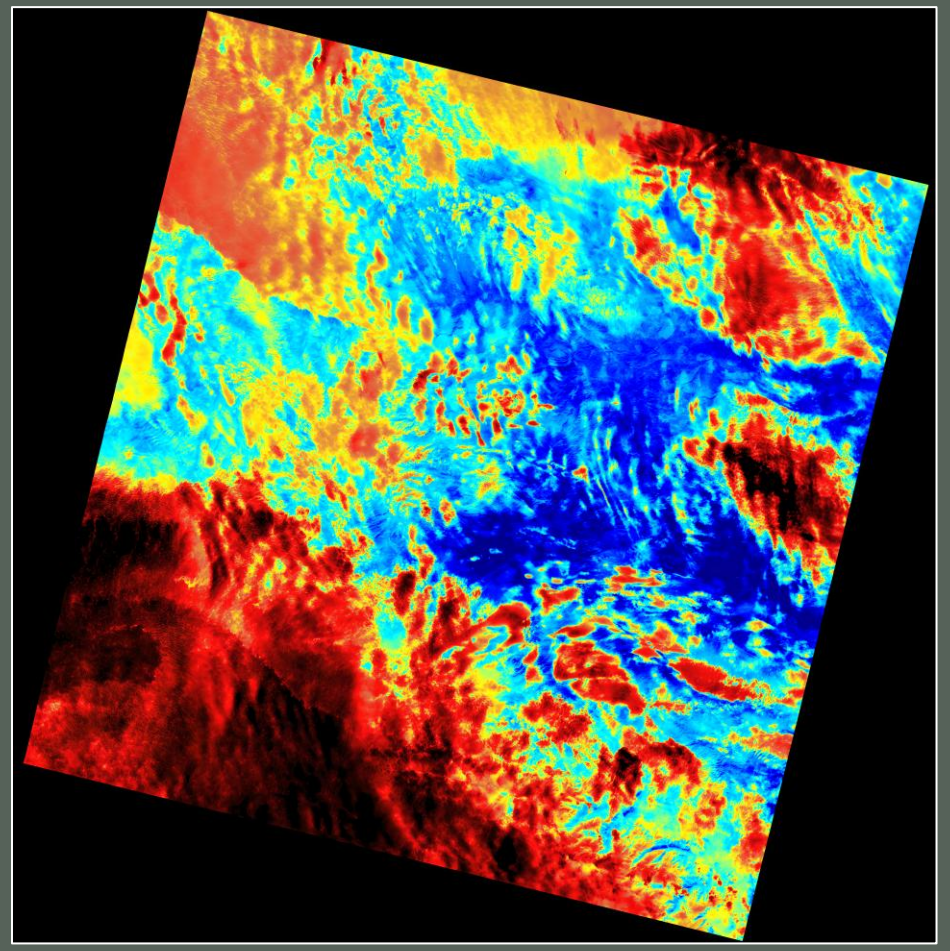
Band 10 (Thermal)
For thermal infrared measurements

MLT.txt
Contains essential calibration coefficients

Input data obtained from https://earthexplorer.usgs.gov



3x resolution



RESOLUTION INCREASE FOR MORE ACCURATE TEMPERATURE ESTIMATION

MODEL IMPLEMENTATION

Model Specifications

- Model size: 67 MB
- Architecture: Modified ERSGAN
- 23 RRDB blocks
- 3x resolution increase

Processing Strategy

- 512x512 pixel tiles
- 32-pixel overlap
- FP16 optimization
- Progressive processing

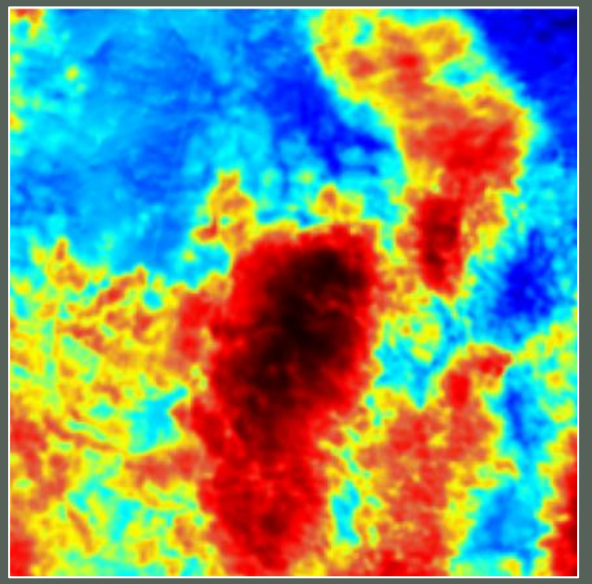
QUALITY METRICS

Average PSNR	Average SSIM	Average MSE
33.59 Db	0.9029	29.34

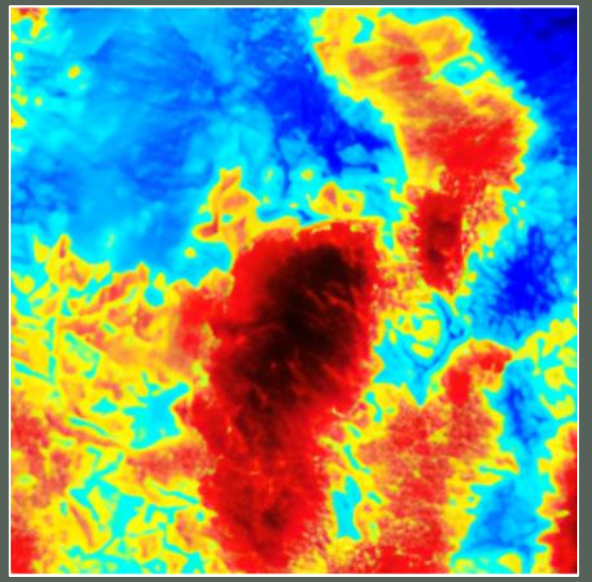
Distribution

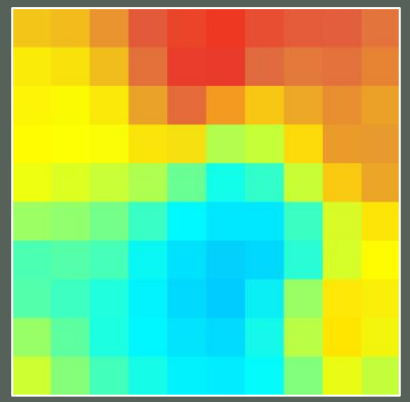
- Model size: 67 MB
- Architecture: Modified ERSGAN
- 23 RRDB blocks
- 3x resolution increase

BEFORE

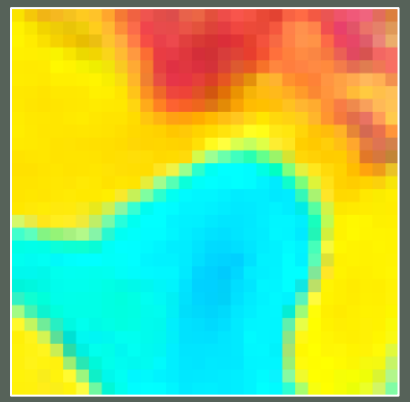


AFTER





ARITHMETIC MEAN



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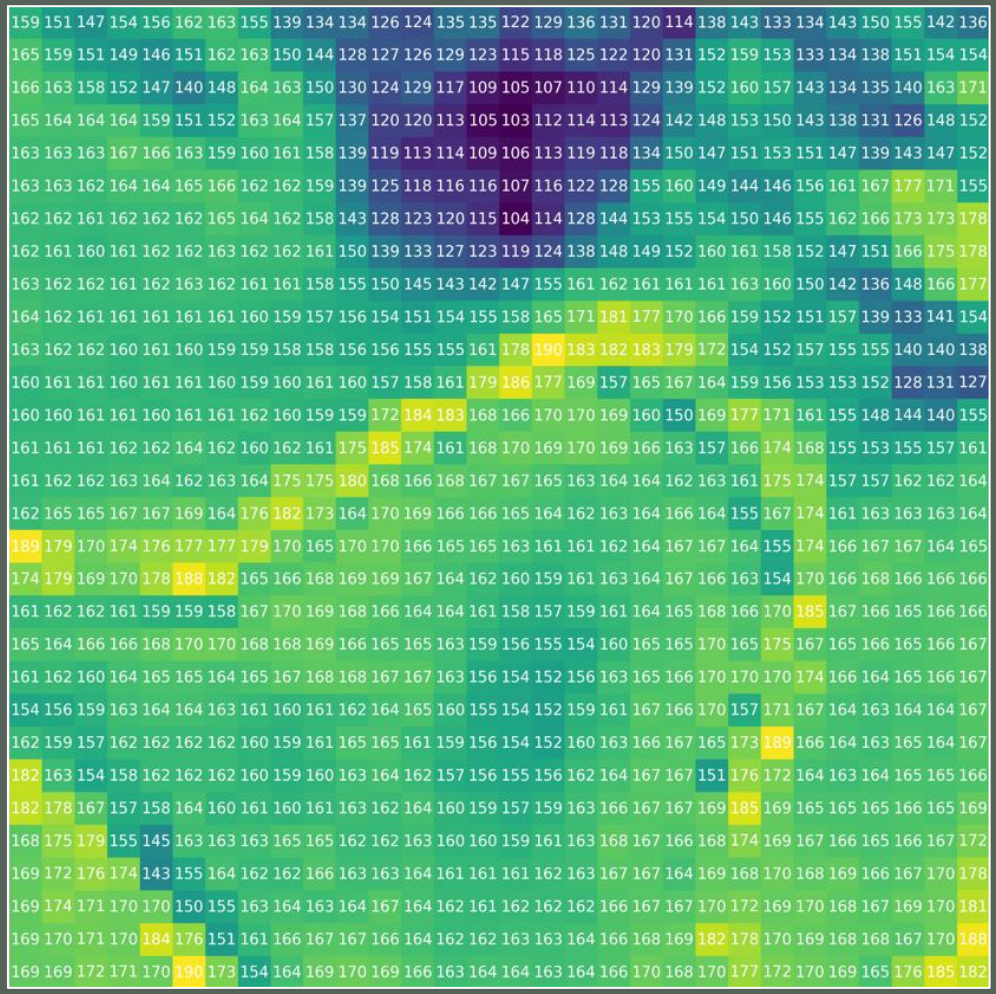

FUTURE IMPROVEMENTS

1. Enhanced processing speed optimization
2. Integration of additional satellite bands
3. Real time processing capabilities
4. Advanced error correction methods

KEY ACHIEVEMENTS

1. Successful implementation of RealESRGAN
2. High structural similarity preservation
3. Efficient large-scale image processing
4. Practical agricultural applications

THANK YOU

The Team

Cretu Gabriel-Nicolae

Costea Gabriel-Antonio

Cozma Gheorghe-Alexandru

Ciubotariu Veronica