

STUDIOMAPP

maps and apps for quality of life

Supporting SDGs monitoring and impact measurement using AI on Satellite Imagery

**Angela Corbari - Cofounder and COO
Studiomapp srl**

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Location Intelligence
Satellite & Drone Imagery
Artificial Intelligence



Climate-KIC



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Artificial Intelligence



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COO – COFOUNDER
Naturalist-GIS

Prima pagina > Economia

Intelligenza artificiale. La startup ravennate Studiomapp premiata dal Pentagono

0 commenti

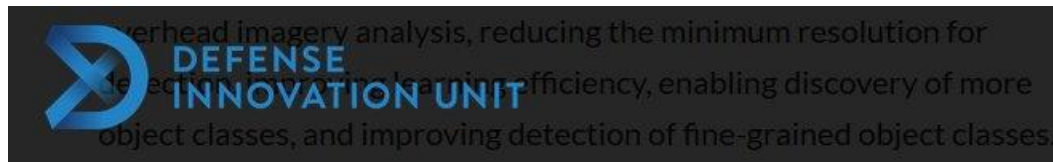


3



La start-up innovativa Studiomapp si è aggiudicata il quarto posto nel concorso internazionale "DIUx xView 2018 Detection Challenge", organizzato dal Dipartimento di Difesa degli Stati Uniti in collaborazione con la National Geospatial Intelligence Agency per sviluppare nuove soluzioni per la sicurezza nazionale con un'attenzione specifica alla gestione dei disastri usando l'intelligenza artificiale.

La sfida è stata lanciata dalla Defence Innovation Unit (DIU), l'organizzazione statunitense che ha l'obiettivo di mettere in contatto il Dipartimento di Difesa con aziende tecnologiche innovative e start-up per risolvere problemi di sicurezza nazionale.



When the Challenge concluded in September 2018, DIU identified the top five performing algorithms:

xVIEW Challenge Winners (Rank. Name (Team))

1. Nick Sergievskiy
2. Victor Stamatescu (University of Adelaide)
3. Sudeep Sarkar (University of South Florida)
4. Leonardo Dal Zovo (Studio Mapp)
5. Ritwik Gupta (Software Engineering Institute / ETC)



Rappresentanza Permanente

NATO - Bruxelles

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La Rappresentanza

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STUDIOMAPP - START UP ITALIANA - PREMIATA DALLA NATO COMMUNICATION AND INFORMATION AGENCY NELL'AMBITO DELLA 4a EDIZIONE DELLA DEFENSE INNOVATION CHALLENGE

Data: 17/04/2019

Studiomapp, start-up italiana, è stata premiata dalla NATO Communications and Information Agency (NCIA) nell'ambito della 4a edizione della "Defense Innovation Challenge", competizione finalizzata a implementare soluzioni tecnologiche innovative da parte di start-up, piccole imprese e università a supporto della NATO e delle sue capacità informatiche.



 A_united_Europe_f...jpg ^

<https://nitech19.com/innovation-challenge-2019/>

United Nations General Assembly



Featured in the
“Digital with Purpose”
report by GESI and Deloitte



Infrastructure monitoring



Battle illegal fishing



Support Disaster Response
Management

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Qirate

www.qirate.com

**Quality of life - Location intelligence
at street level**

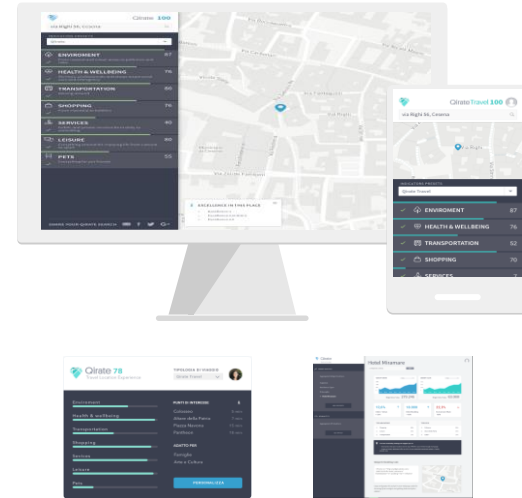


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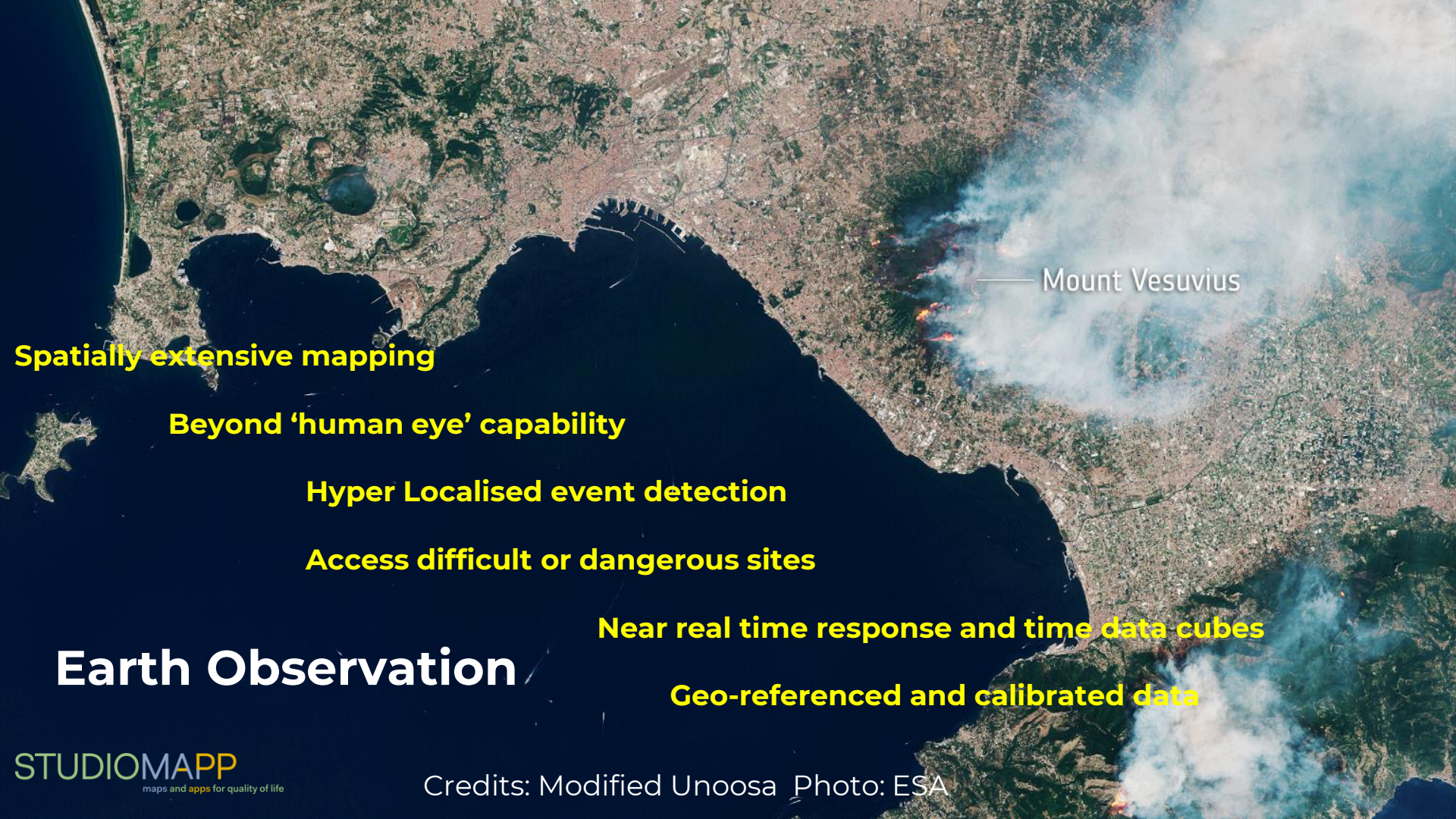


Location intelligence at street level



User
Web &
Mobile

B2B A,PI Widget &
Analytic dashboard



— Mount Vesuvius

Spatially extensive mapping

Beyond 'human eye' capability

Hyper Localised event detection

Access difficult or dangerous sites

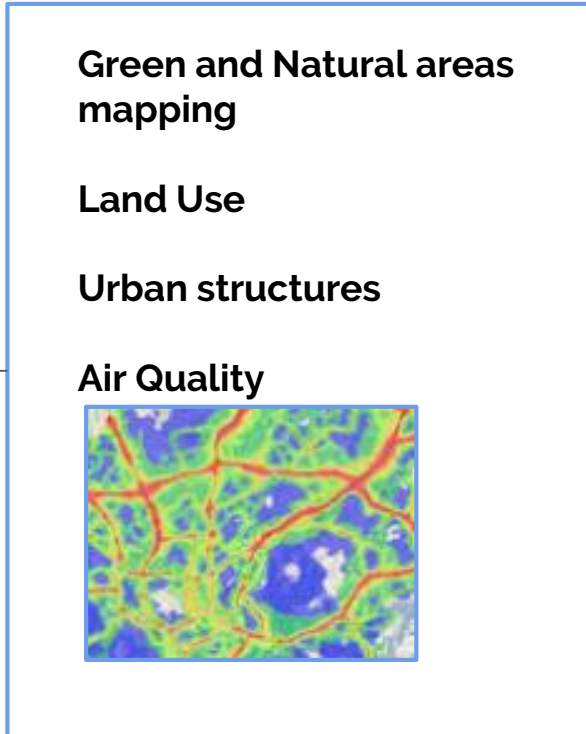
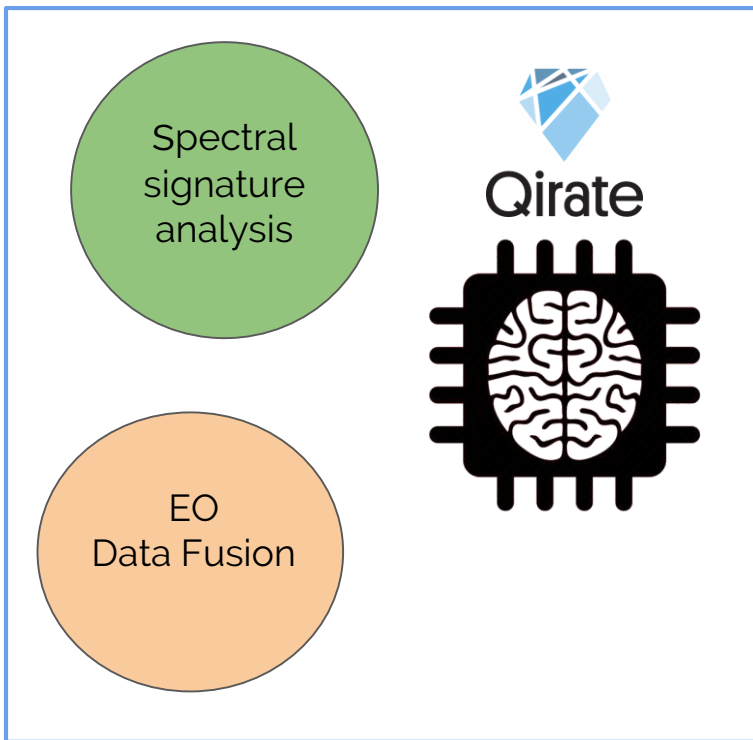
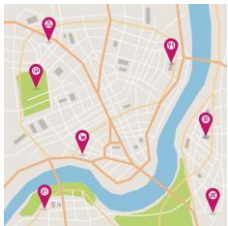
Near real time response and time data cubes

Earth Observation

Geo-referenced and calibrated data

Geospatial data added value for Qirate

business
incubation
centre
Lazio





2003

Data di acquisizione delle immagini: 4/25/2019

Lat 48.233563° Lon 16.416554° elev 164 m alt 530 m

Credits:
Google Earth



Deep Learning Solution

Sat Imagery analysis

Object Detection

Extract insights

Fast and at scale

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[DATASET](#)[CHALLENGE](#)[THEME](#)[WORKSHOP](#)[REGISTER](#)

DIUx xView 2018 Detection Challenge

OBJECTS IN CONTEXT IN OVERHEAD IMAGERY

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Defense Innovation Unit Experimental (DIUx) and the National Geospatial-Intelligence Agency (NGA) are releasing a new satellite imagery dataset to advance key frontiers in computer vision and develop new solutions for national security and disaster response.

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xView Challenge by Defense Innovation Unit

WHAT IS xVIEW?

xView is one of the largest publicly available datasets of overhead imagery. It contains images from complex scenes around the world, annotated using bounding boxes. The DIUx xView 2018 Detection Challenge is focused on accelerating progress in four computer vision frontiers:

- 1 Reduce minimum resolution for detection
- 2 Improve learning efficiency
- 3 Enable discovery of more object classes
- 4 Improve detection of fine-grained classes

xView follows in the footsteps of challenges such as Common Objects in Context (COCO) and seeks to build off SpaceNet and Functional Map of the World (FMoW) to apply computer vision to the growing amount of available imagery from space so that we can understand the visual world in new ways and address a range of important applications.

xView comes with a pre-trained baseline model using the TensorFlow object detection API, as well as an example for PyTorch. More details about the dataset and initial experiments can be found in our NIPS poster presented at the *Machine Learning for the Developing World* workshop.

xVIEW BY THE NUMBERS

1.0 million

Object Instances

60

Classes

0.3 meter

Resolution

1,415

km²

xView features a diverse collection of small, rare, fine grained, and multi-type objects with bounding box annotation.

DATASET EXAMPLE

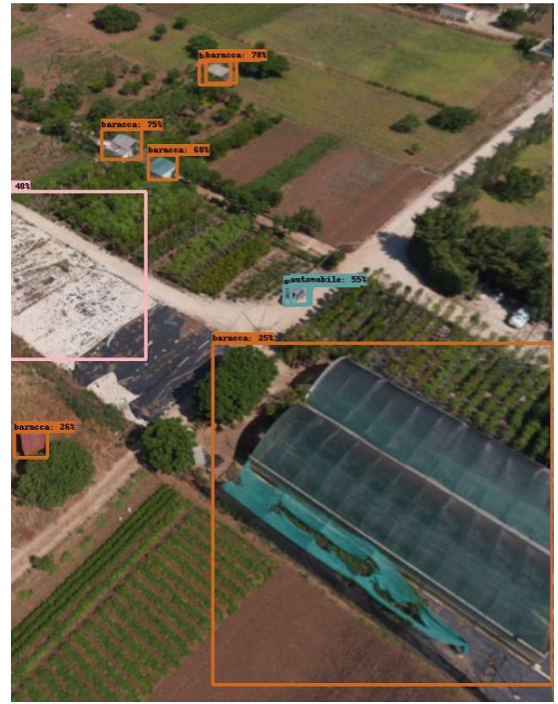
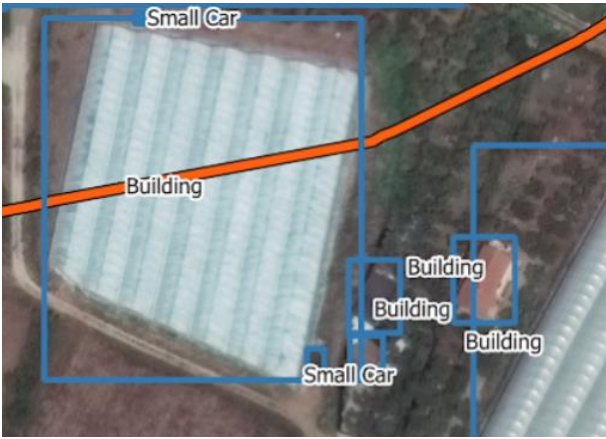
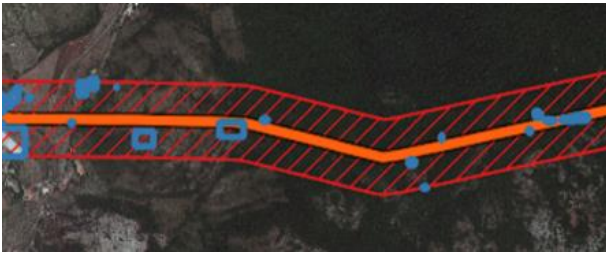




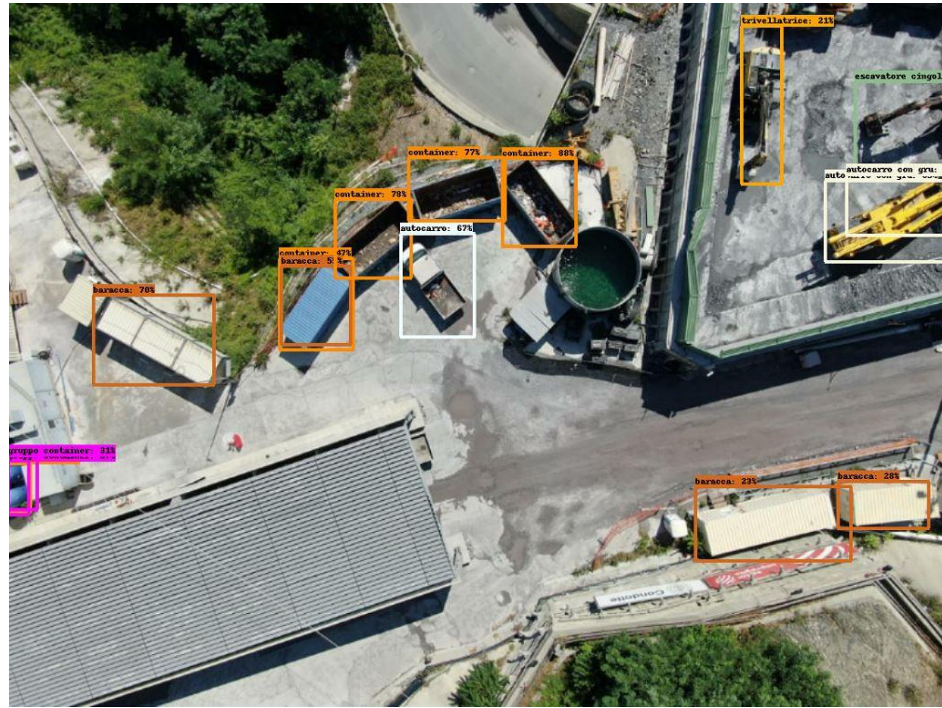
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Infrastructure monitoring



Construction sites monitoring



Infrastructure and constructions monitoring

Impact:

- **Very low carbon footprint**
- **Reduce survey missions and workers' risks**
- **Automate interference identification with alerts**
- **Monitor also remote and inaccessible areas**
- **Improved security of the infrastructure**

Assets monitoring





UN World Conference on
Disaster Risk Reduction
2015 Sendai Japan

From Managing disasters
to Managing disasters's
risk

The outcome the framework is to substantially **reduce** disaster risk and losses in lives, livelihoods and health, as well as to **protect** the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries.

**187 countries adopted
Sendai Framework for Disaster
Risk Reduction 2015-2030**

A satellite-style map of Europe, showing the continent in shades of green and brown, surrounded by blue oceans. The map is the background for the text.

The Sendai Framework promotes the use of space information which has a relevance in all priorities :

1. Understanding disaster risk;

2. Strengthening disaster risk governance to manage disaster risk;

3. Investing in disaster risk reduction and resilience;

4. Enhancing disaster preparedness for effective response, and to “Build Back Better” in recovery, rehabilitation and reconstruction.

AI in Support of Disaster Response Management



Priority 1: Understanding disaster risk

How? Measuring the exposure of people

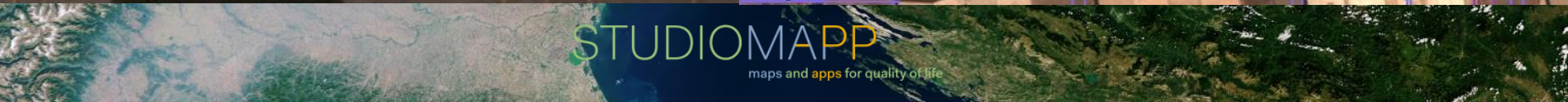


Priority 2: Strengthening disaster risk governance

How? Supporting planning and prioritisation of disaster response



xView dataset



Priority 3: Investing in disaster risk reduction for resilience

How? Mapping support to identify and value assets for Insurance



Priority 4: Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and reconstruction

How? Monitoring capacities in place and reconstruction progresses



xView dataset

Support Disaster Response Management

Impact:

- Support in all the Disaster Risk Management cycle
- Speed up the assessment of large areas
- Very low carbon footprint
- Save lives!

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Thank you!

Ideas or projects?

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