



Project Aria

PI: Dr Carlos Moreno-García (Associate Prof, RGU)

<https://www.projectaria.com/>

Co-PI: Dr Shahana Bano (Lecturer, RGU)

RAs/RFs: Salah Elshafey (Arab Academy for Science, Technology, and Maritime Transport, Egypt) Luis Toral Quijas (Ventex, HPR & Innosport), Joseph de Matia (MSci Computing, RGU)

How it came to be?



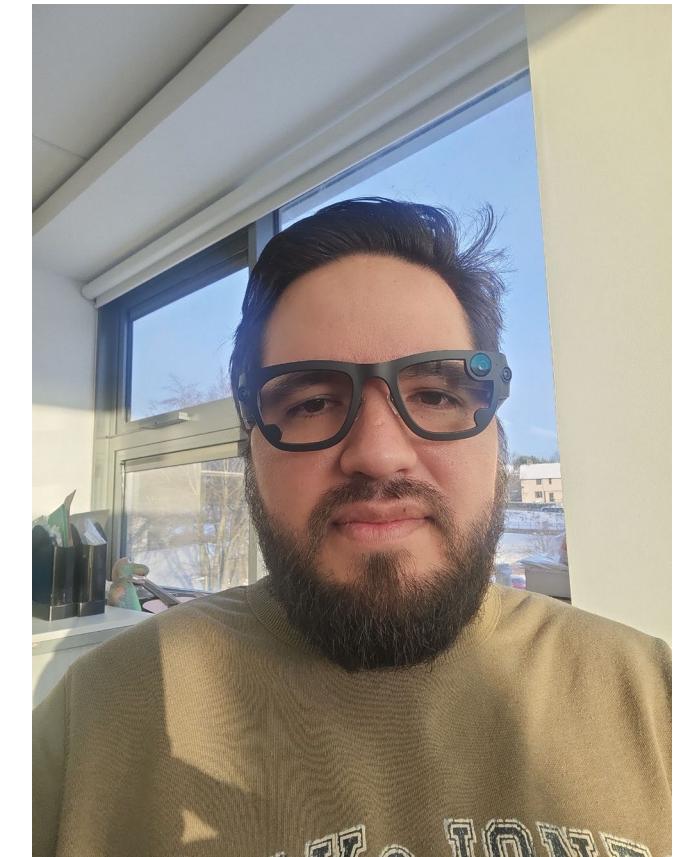
How it came to be?

Home > Tech > Tech News

Meta Is Making AR Glasses But The First Version Won't Be For You

Meta's first-generation AR glasses will reportedly be a demonstration product for developers and won't be available to buy commercially.

BY KISHALAYA KUNDU PUBLISHED JUN 10, 2022



How it came to be?



The 34th British Machine Vision Conference
20th - 24th November 2023, Aberdeen, UK

The British Machine Vision Conference (BMVC) is the British Machine Vision Association's (BMVA) annual conference on machine vision, image processing, and pattern recognition. It is one of the major international conferences on computer vision and related areas held in the UK. With increasing popularity and quality, it has established itself as a prestigious event on the vision calendar.

THANKS TO EVERYONE THAT MADE BMVC2023 A SUCCESS! SEE YOU AT BMVC2024 IN GLASGOW!

-Photos of the event can be found [here](#).

-If you liked the [Attendr App](#) please rate it in the Google Play/Apple store. It would mean a lot to us!

Sponsors

Platinum Sponsor

 Meta

Gold Sponsors

 IET The Institute of Engineering and Technology

 prime video

 sicsa*

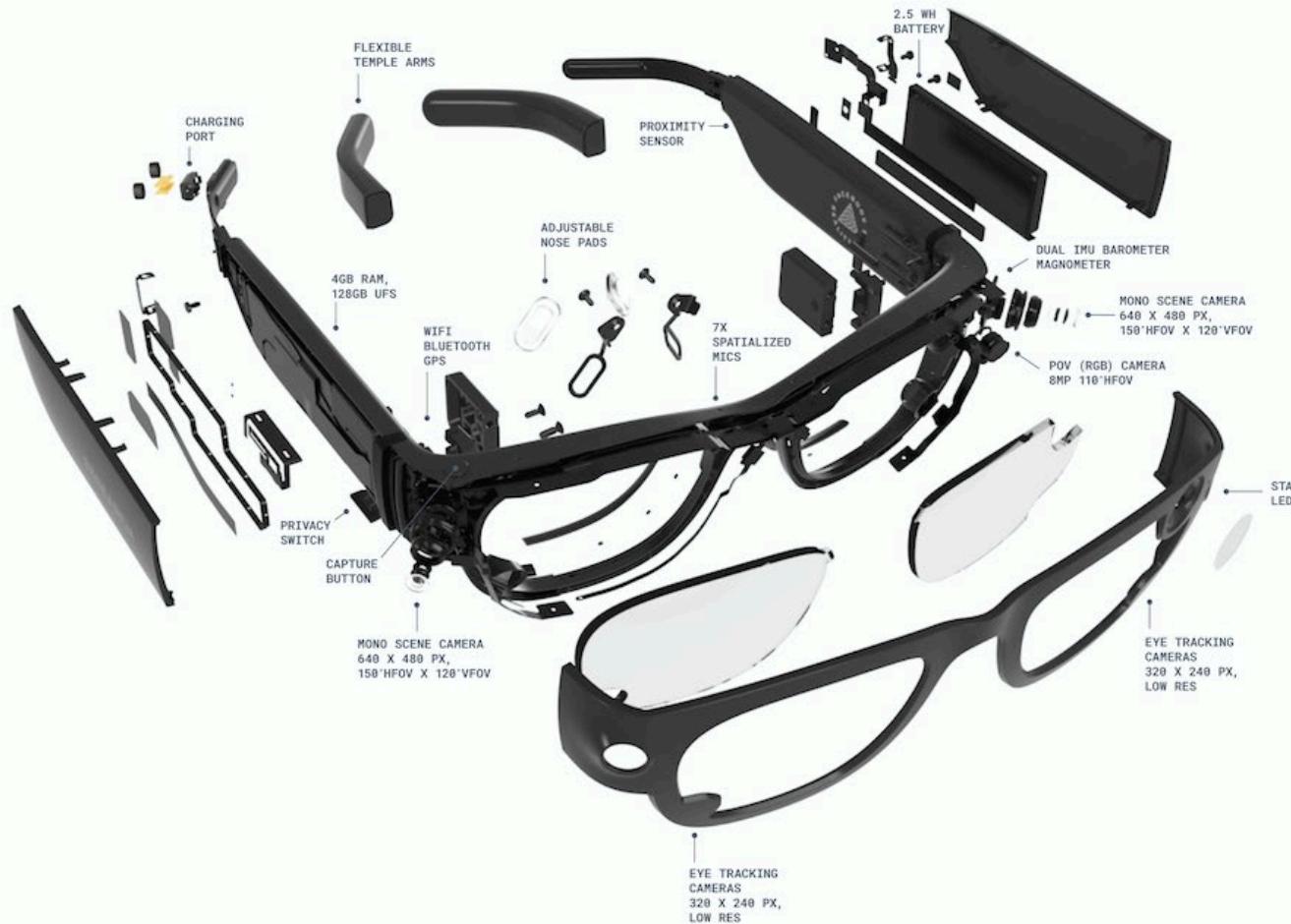
BMVC 2023 WORKSHOP

Project Aria for
All-Day
Egocentric
Research

Friday, 24th November 2023
Sir Ian Wood Building, Robert Gordon
University



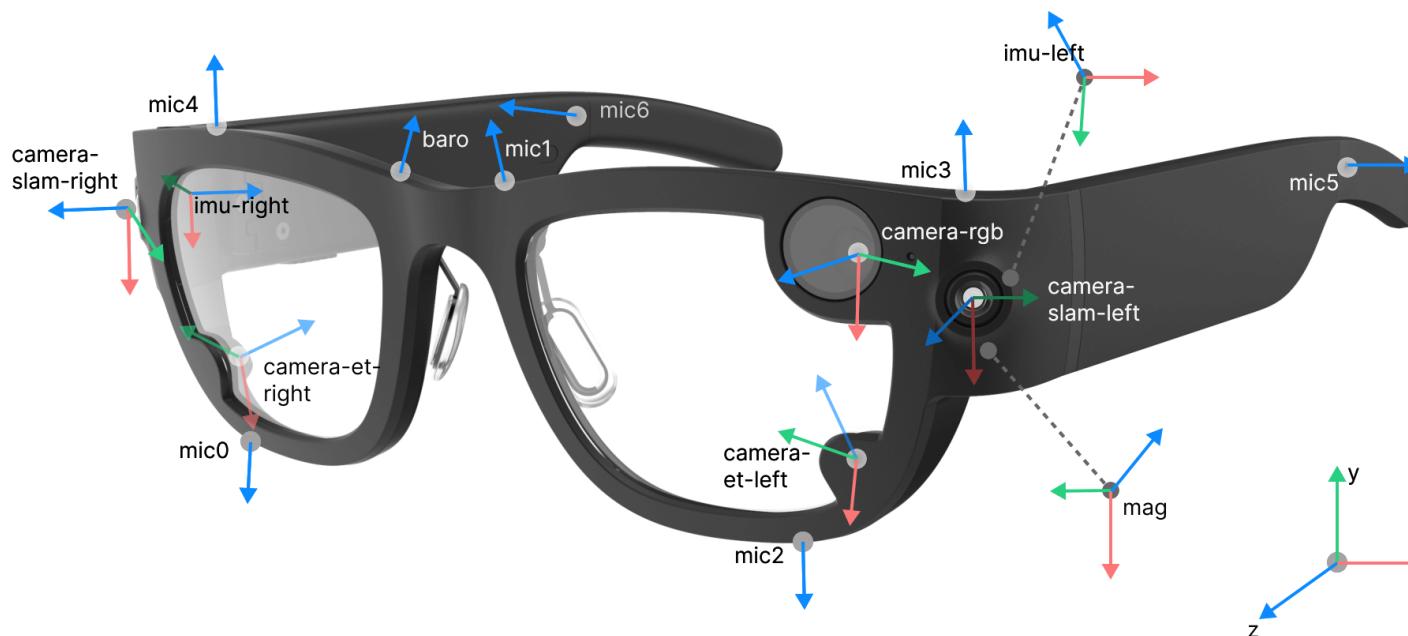
ARIA GEN 1



Project Aria glasses have five cameras (two Mono Scene, one RGB, and two Eye Tracking cameras) as well as non-visual sensors (two IMUs, magnetometer, barometer, GPS, Wi-Fi beacon, Bluetooth beacon and Microphones)

ARIA GEN 1

Applications like stereo vision and navigation usually handle 2D and 3D points in different spaces, and transformations need to be conducted between them. With Project Aria data, we attach a local R3 coordinate frame to each sensor.



- Qualcomm SD835, 4GB RAM, 128GB storage
- Flash memory (UFS)
- Android 7.1
- SW configurable user button and switch

ARIA GEN 1



ARK

Aria Dashboard

Paired Glasses



Announcing Aria Research Kit v1.14!

Announcing Aria Research Kit v1.14 with 21 Landmark Hand Tracking in MPSI

[Learn more](#)
[New Recording Session](#)

Live Preview

See camera sensor streams without recording

[Begin Live Preview](#)


Recording Profiles

[More info](#)

Custom Profile
Custom
RGB 10fps 2MP; SLAM 10fps VGA; ET 10fps QVGA; Audio, GPS, IMUs, Wi-Fi on

[Edit parameters](#)

Profile 0
Default
RGB 1fps 8MP; SLAM 10fps VGA; ET 10fps QVGA; Audio on

Profile 2
RGB and SLAM high frame rate
RGB 20fps 2MP; SLAM 20fps VGA; ET and Audio off

Profile 4
RGB high frame rate JPEG with audio
RGB 10fps 2MP; GPS and Audio on; ET, SLAM, Wi-Fi and BLE off

Profile 5
Eye tracking calibration
RGB 20fps 2MP; ET 20fps VGA; IMUs on; other sensors off

Profile 7
RGB high frame rate RAW with audio
RGB 10fps 2MP RAW; GPS and Audio on; ET, SLAM, Wi-Fi and BLE off

Profile 8
Noise and hearing mode
RGB 5fps 2MP; SLAM 15fps VGA; ET 30fps QVGA; Audio on; GPS, Wi-Fi and BLE off

Profile 9

Recordings

[Date](#) [On Glasses](#)

Yesterday

2 June



Eye and hand test

Monday, 2 June 2025
12:58 · 24 sec

>

On Device



Eye Tracking Calibration

Monday, 2 June 2025
06:58 · 1 min 6 sec

>

On Device

Object Detection

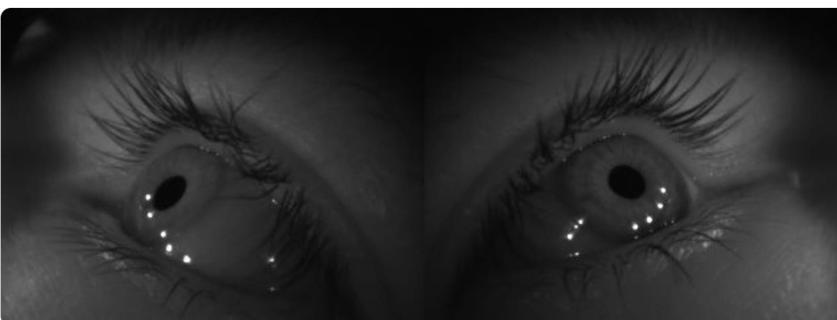
X

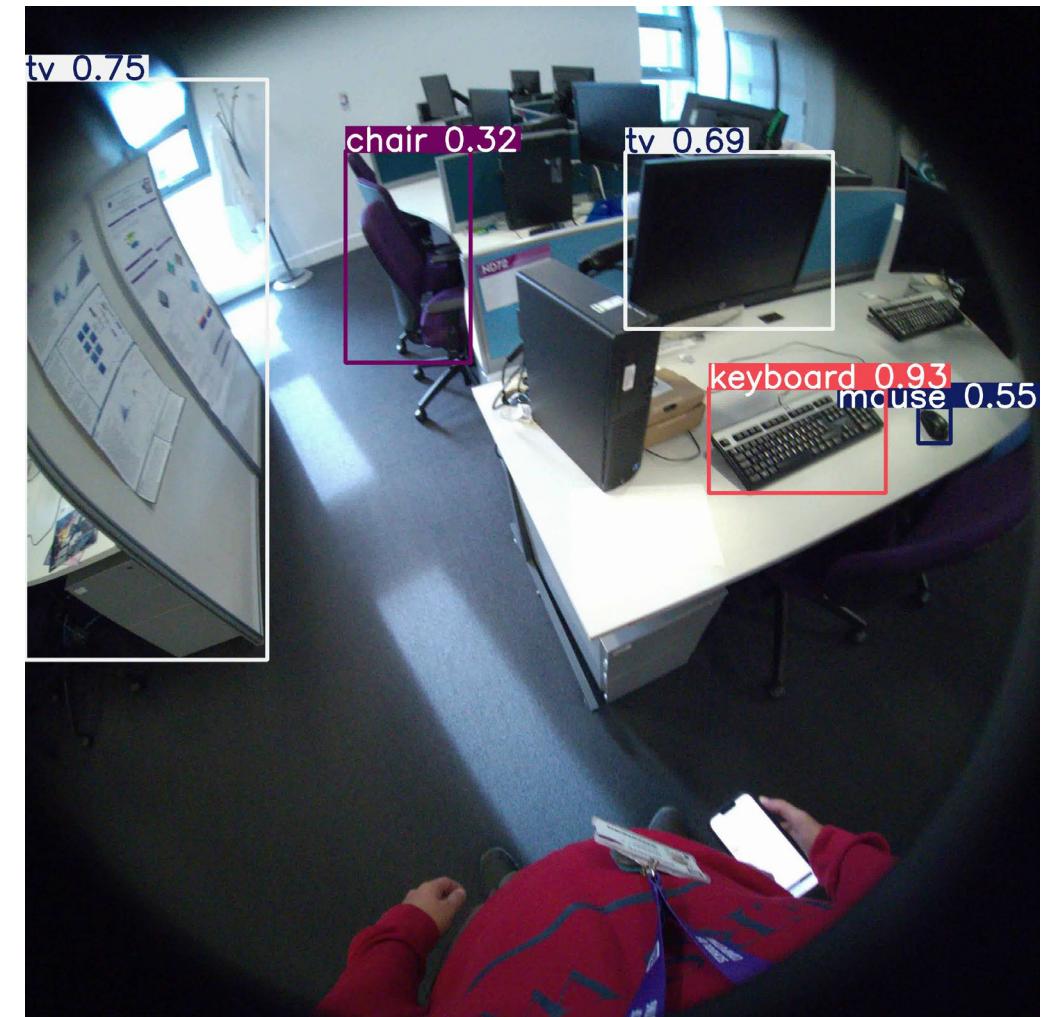
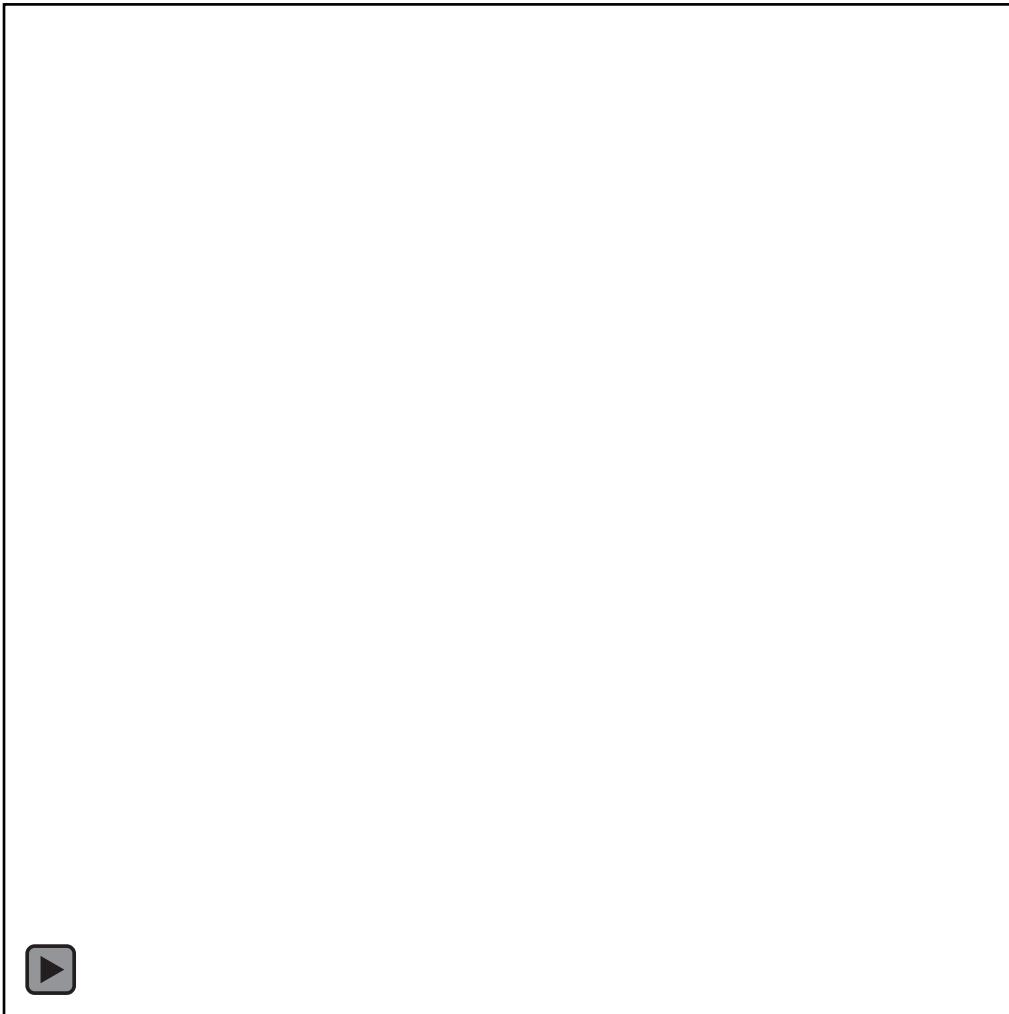
Live Preview

SLAM Cameras



Eye Tracking Cameras





- Yolo-V8n trained on different image sets (trained for 23 classes)



269 images



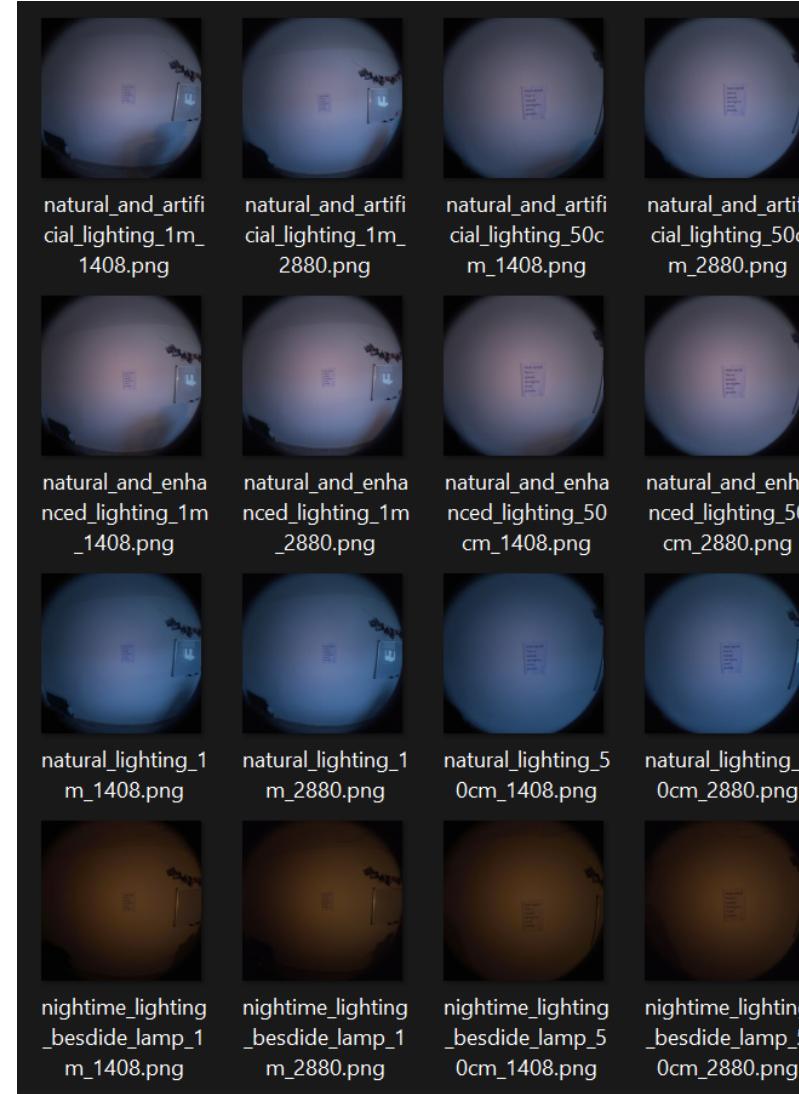
314 images



822 images

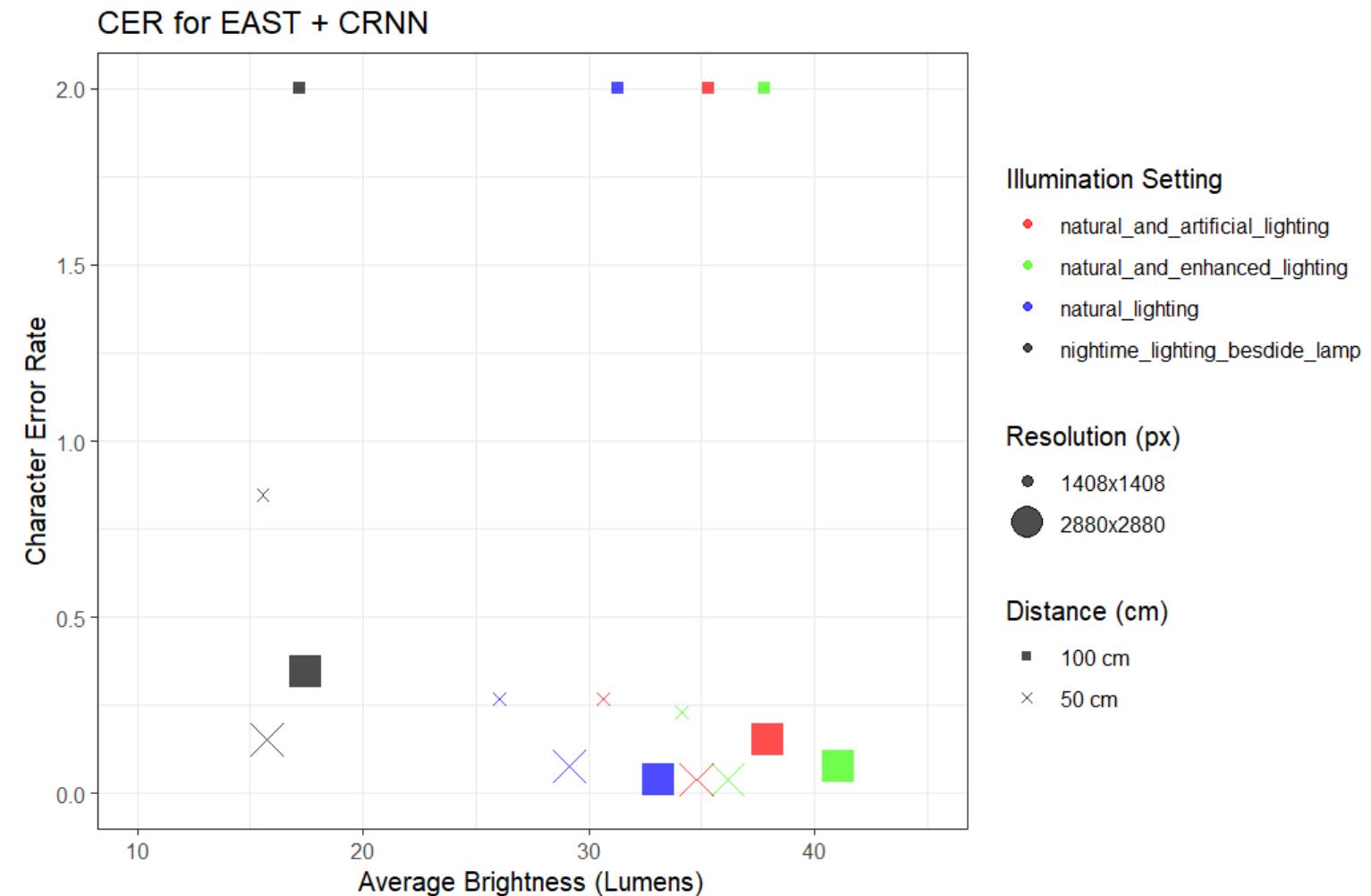
Text detection in the wild

- 16 images
- 4 illumination settings
 - Natural
 - Natural + Artificial
 - Natural + Enhanced Artificial
 - Night-time Lighting
- 2 distances
 - 50 cm
 - 100 cm
- 2 resolutions
 - 1048×1048
 - 2880×2880



Evaluation

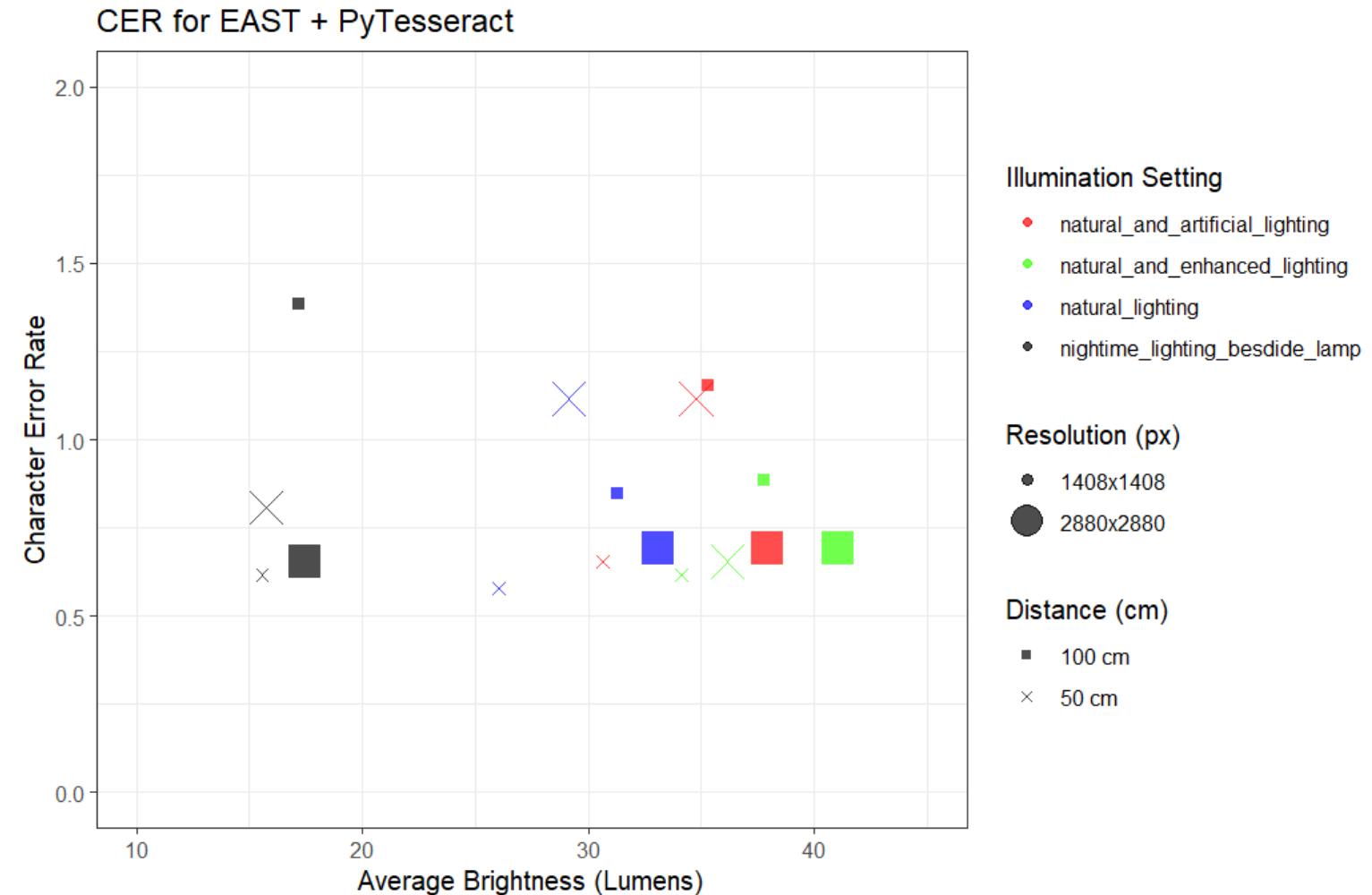
- Environment impact on text detection using EAST-based model (pretrained with ICDAR 2024 competition dataset).
 - Two OCR algorithms: **CRNN** and PyTesseract
 - Evaluated metric: Character Error Rate (Levenshtein)



Jahagirdar, S.S. et al. (2024) 'ICDAR 2024 competition on reading documents through Aria glasses', in *Lecture Notes in Computer Science*. Cham: Springer Nature Switzerland, pp. 410–425. https://doi.org/10.1007/978-3-031-70552-6_2.

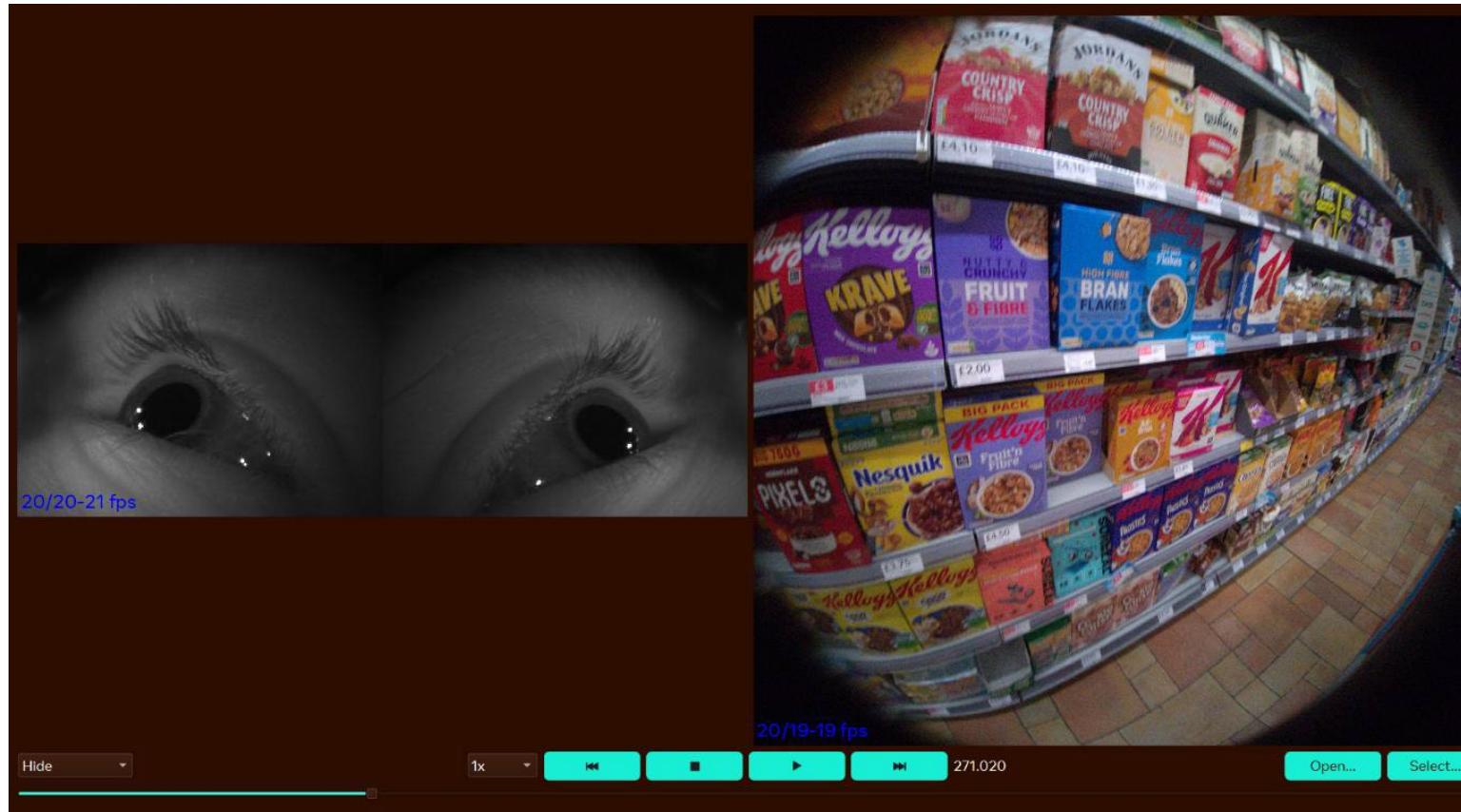
Evaluation

- Environment impact on text detection using EAST-based model (pretrained with ICDAR 2024 competition dataset).
- Two OCR algorithms: CRNN and PyTesseract
- Evaluated metric: Character Error Rate (Levenshtein)



Jahagirdar, S.S. et al. (2024) 'ICDAR 2024 competition on reading documents through Aria glasses', in *Lecture Notes in Computer Science*. Cham: Springer Nature Switzerland, pp. 410–425. https://doi.org/10.1007/978-3-031-70552-6_2.

Text detection for consumer behaviour in supermarkets



-De Mathia, J. (2025). Enhancing Scene Text Recognition with Project Aria Glasses: Evaluating Algorithms, API Integration, and Real-World Applications. MSci. Thesis. Supervisor: Moreno-García, C. F.

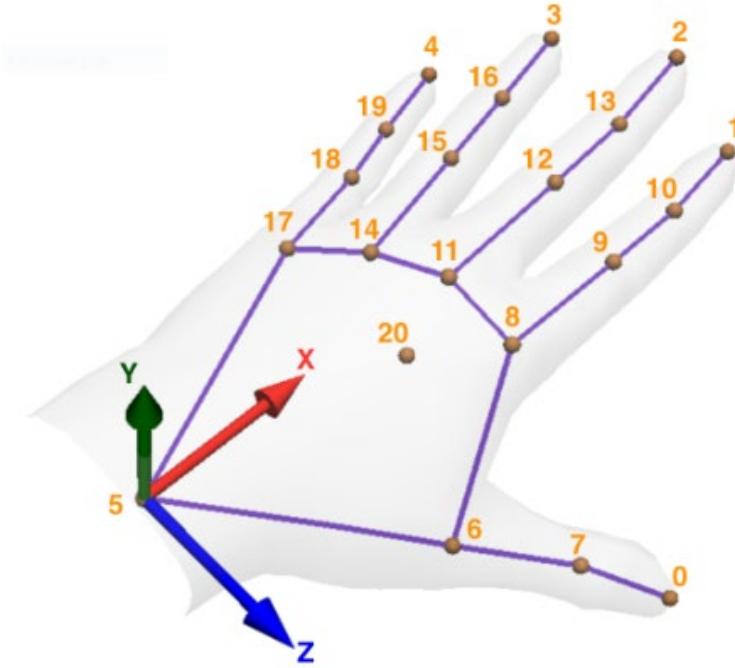
Text detection for consumer behaviour in supermarkets



-De Mathia, J. (2025). Enhancing Scene Text Recognition with Project Aria Glasses: Evaluating Algorithms, API Integration, and Real-World Applications. MSci. Thesis. Supervisor: Moreno-García, C. F.

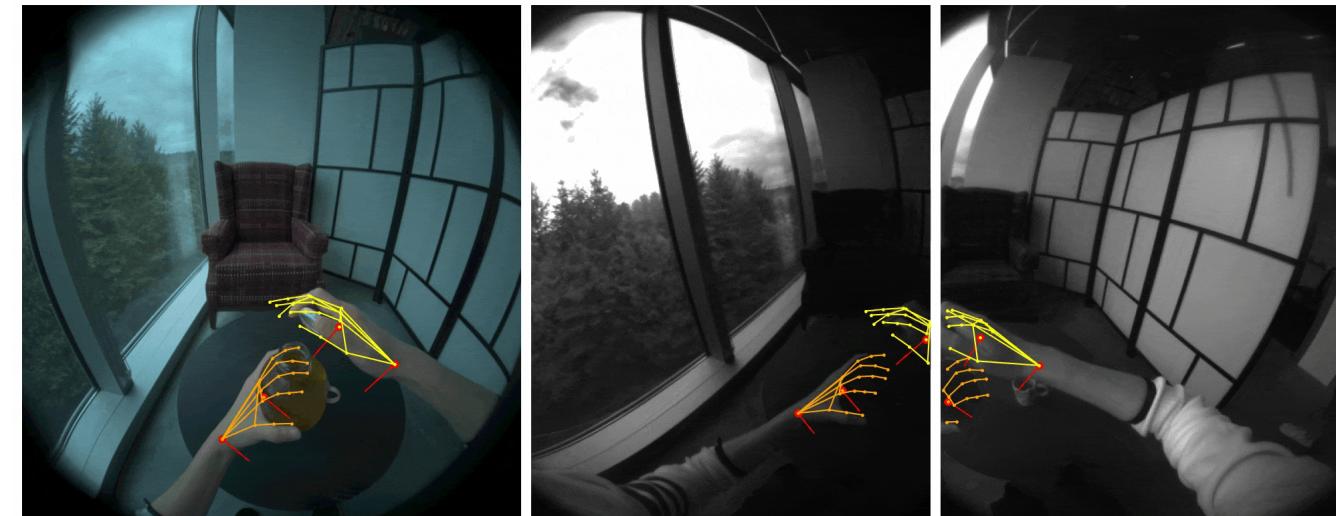
Hand Tracking Outputs

Hand Tracking



We currently provide hand tracking data. The file outputs are:

- `hand_tracking_results.csv` - the coordinates of 21 hand landmark positions, wrist and palm normals in the device frame, and the full 6DoF transform from the hand frame (origin at wrist position) to the device frame
- `wrist_and_palm_poses.csv` - the coordinates of the wrist and palm positions, and normal vectors indicating orientation, in the device frame
- `summary.json` - high-level report on MPS hand tracking



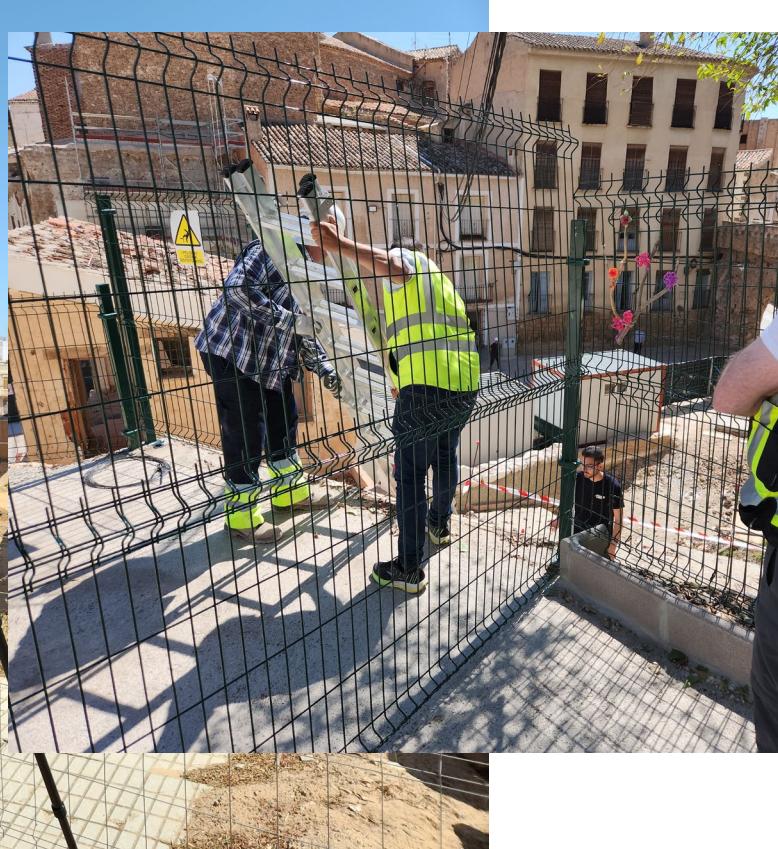
Eye-Gaze and Hand Tracking



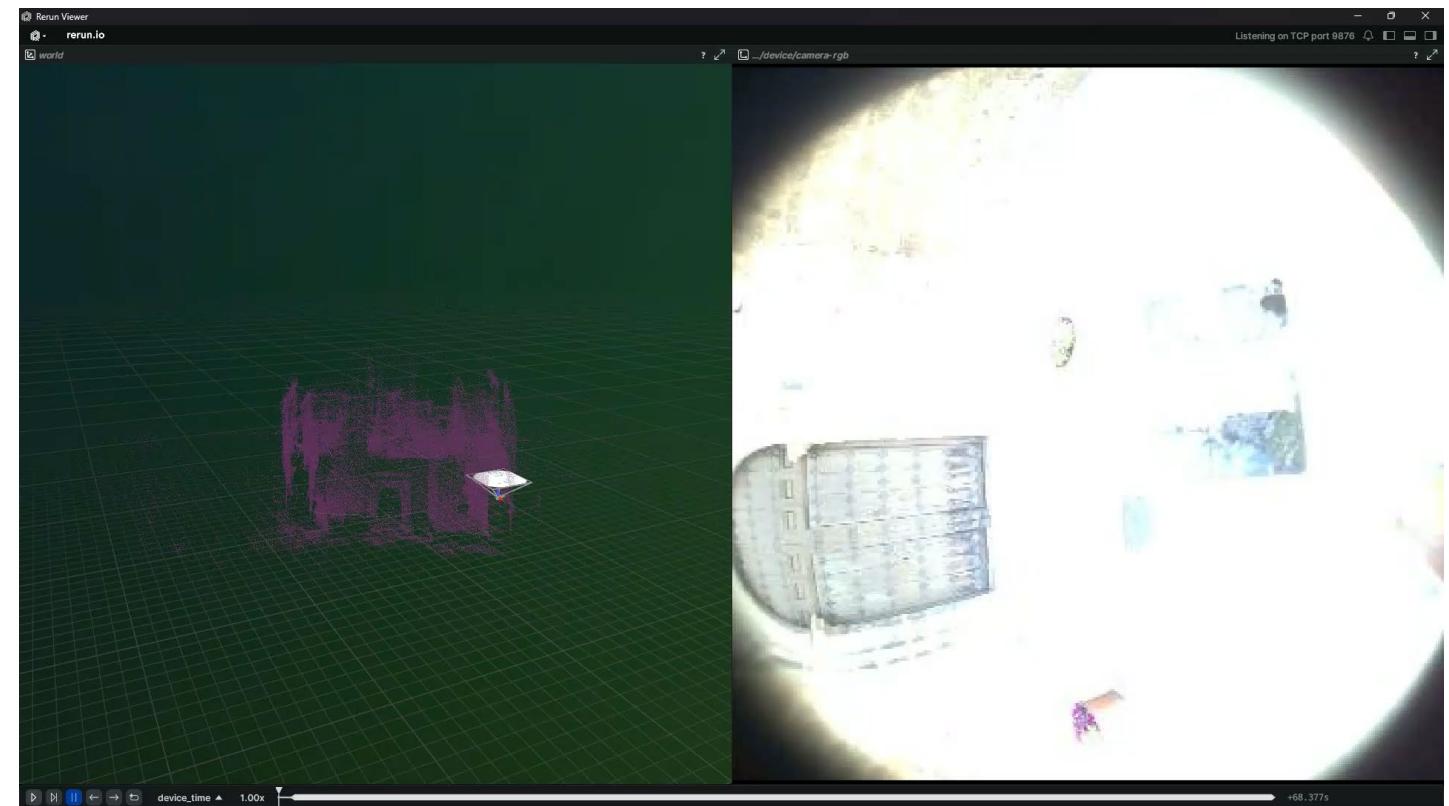
SLAM and Trajectory Tracking



In-site Testing (Spain)



In-site Testing (Spain)



ARIA GEN 2



Join the interest list to be notified when applications for Aria Gen 2 open later this year.

 JOIN THE INTEREST LIST





More on Project Aria

- Explore their [website](#), [docs](#), [GitHub](#), [paper](#), [tools](#), [research projects](#), and [datasets](#) (plus [dataset explorer](#))
- Check out their [CVPR 2024](#) and [ECCV 2024](#) tutorials (we had one of those at RGU!)
- Join their [Workplace/Discord](#) community
 - Instructions on how to join Workplace [here](#)
 - Discord invitation [here](#)
- Make a recording with the [ARK](#) and check the outputs in [Aria Studio](#)