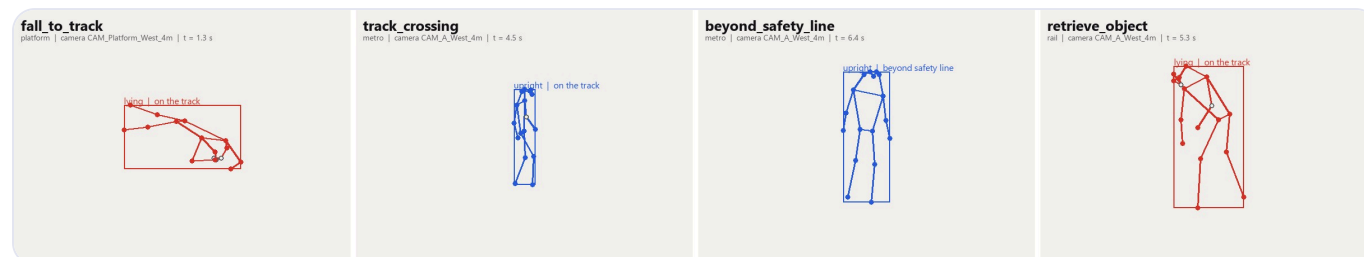


Synthetic Railway Platform Safety Dataset

Simulated falls, pushes, people on the track and people at the platform edge in railway and metro stations, each observed by 12 CCTV cameras, with COCO-17 keypoints, phases and a per-frame zone (behind the line, beyond the line, edge, track). Built to train and test platform safety alarms.



1,142

simulated events

13,704

sequences (12 cameras each)

28.7 h

3.10 M frames at 30 fps

13

classes with per-frame zone

● Falls and pushes (294 events)

fall_to_track	115	fall_to_track_pushed	32
fall_platform	79	fall_platform_pushed	68

● On the track, at the edge, normal (848 events)

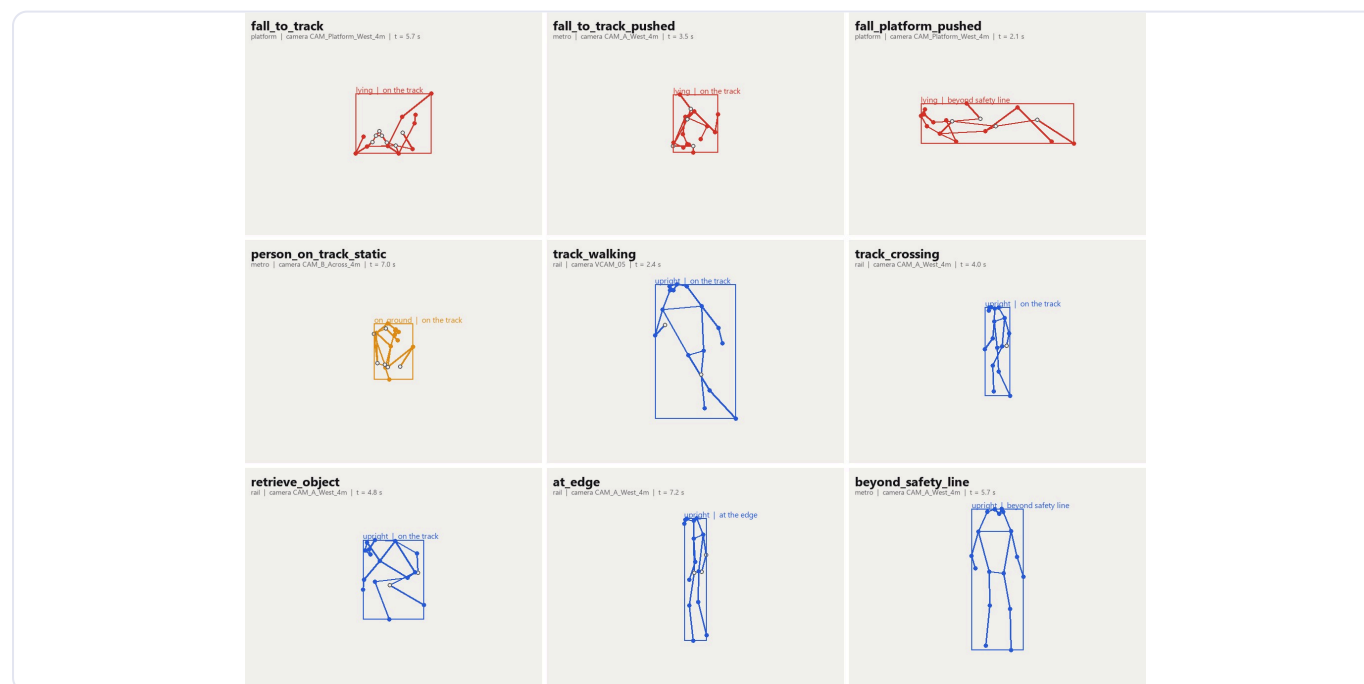
person_on_track_static	60	track_walking	80
track_crossing	76	deliberate_descent	119
retrieve_object	60	at_edge	97
beyond_safety_line	80	edge_stumble_recover	40
negative	236		

● Annotations

- **Per frame and camera:** 17 COCO keypoints with visibility, bounding box, phase (upright, falling, lying, on_ground) and zone: platform_safe, beyond_line, edge, track.
- **Per event:** end location (platform or track), fall onset, impact and motionless time, every falling segment (a slide from the edge onto the track counts as a second fall).
- **Per simulation:** 3D skeleton (23 joints and 17 keypoints); camera intrinsics and extrinsics.

Xentim is a brand of TATO STUDIO sp. z o.o., ul. 28 Czerwca 1956 r. 174/28, 61-507 Poznan, Poland. Generated with Unreal® Engine (Epic Games, Inc.) and NVIDIA Kimodo (NVIDIA Open Model License; text encoder built with Meta Llama 3). Not affiliated with, sponsored or endorsed by Epic Games, NVIDIA or Meta.

● Labels at the key moment



● Scenes and cameras

Scenes	surface station 395, metro station 449, single platform 298 events; two platforms and two tracks, platform 76 cm above the rail head
People	one person per event, 165.6 cm mannequin
Cameras	3 fixed + 9 randomized CCTV per event; 2.5 to 4.8 m high, 3.5 to 13 m away, 12 to 24 mm lens, Super 35 sensor
Split	train 9,636 / val 2,220 / test 1,848 sequences; by simulation for routes, pushes and collapses, by base motion for generated fall motions
Visibility	74 % of keypoints visible on average
Formats	Parquet, CSV, JSON (ZIP)

● Licence and pricing

Research: one academic or public research institution, non-commercial research and teaching only, no updates or support	€3,000
Standard: one legal entity, all its sites, updates v1.x for 12 months, email support	€18,000
Enterprise: Standard plus affiliates, priority support and one custom scenario pack (up to 200 simulations of your scene or camera layout, within 6 weeks)	€45,000
Bundle of three Xentim datasets (falls, railway, fights)	25 % off

Free evaluation sample: 26 simulations (2 per class, 13 classes) x 12 cameras, 312 sequences, with preview videos (rail_v1_sample.zip, 21 MB). Keypoint annotations only, no RGB video. Licensed for discriminative models; use for generative AI is prohibited.

● How it was made

- Walking, running, climbing down and back up: Unreal Motion Matching and traversal along scripted routes.
- Activities on the platform and on the track: NVIDIA Kimodo text-to-motion, retargeted to the Unreal Engine mannequin.
- Falls and pushes end in an Unreal Engine 5.8 physics ragdoll; the fall from the edge onto the track follows physics.
- Automatic motion quality control on every simulation; failed runs fixed and re-run or removed. No real people, no personal data.