Burak Soyak

Senior Computer Vision & Applied AI Engineer · Sports Tech · Broadcast Systems

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Available for outside-IR35 contracts · Full UK working rights (ILR) from August 2026

PROFILE

Computer Vision and Applied AI Engineer with 20+ years building production systems in sports and broadcast environments. I build real-time CV pipelines (detection, segmentation, tracking) that operate under live-event constraints where latency and reliability are non-negotiable, not benchmarking conditions. My work spans GPU-accelerated inference pipelines, full system integration, and deployment; I've operated these systems personally on the ground at 50+ international live events. Currently completing an Imperial College London Professional Certificate in ML/AI, ranking in the top cohort across all assessed work.

CORE SKILLS

Detection & Segmentation	Detectron2 (Mask R-CNN), Faster R-CNN, YOLO v5/v8/v11, SAM2
Tracking	Optical flow (RAFT), IoU / centroid tracking, detection-assisted hybrid tracking, OpenCV trackers
ML & Acceleration	PyTorch (CUDA / cuDNN), TensorRT, GPU optimisation, Gaussian Processes, Bayesian optimisation
Video & Pipelines	OpenCV, FFmpeg, NDI, SRT, real-time frame extraction, broadcast-grade latency
Languages	Python, C#, .NET Core, JavaScript
Systems & Cloud	Docker, AWS, REST APIs, SQL Server, distributed real-time architectures
Domain	Sports tech, live event systems, broadcast graphics, race timing, AI-assisted officiating

EXPERIENCE

Founder & Lead Computer Vision Engineer

2021 – Present

ioCode Limited · Reading, UK

- Designed and built AlterVision, a real-time CV system for pitch-side advertisement detection and replacement in broadcast video available at adswap.ai.
- Selected Detectron2 (Mask R-CNN) after extensive model evaluation; pixel-accurate segmentation was required for broadcast-safe visual replacement.
- Built hybrid tracking combining GPU-based optical flow (RAFT) with detection confidence, maintaining stability under camera motion and occlusion.
- Implemented perspective-aware ad replacement via homography and alpha blending; achieved 15–18 FPS on RTX 5070 Ti suitable for broadcast post-processing.
- Evaluated TensorRT optimisation paths for inference acceleration; full deployment pipeline containerised with Docker.
- Conducted sustained experimentation across tracking architectures, segmentation models, and acquisition strategies documented in public GitHub repository (absoyak).

Chief Timing Officer & Technical Lead

2019 – Present

H2O Racing F1H2O & UIM Aquabike World Championships · Worldwide

- Sole technical lead for official real-time race timing systems used across F1H2O and Aquabike World Championship events; operated personally on-site at 50+ international events since 2019.
- Rebuilt the entire timing platform from legacy VB5 to a modern .NET / SQL Server architecture delivering live data to race control, team managers, VIP tribune displays, and broadcast graphics simultaneously.
- Integrated AI-assisted boat detection (Faster R-CNN + NDI/FFmpeg pipeline) for timing support; CV-based detection achieved higher consistency than manual timing under normal race conditions.

- Deployed MyLAPS GPS transponder integration in 2026, replacing hybrid manual/camera timing with real-time GPS data feeds across the full fleet.
- Designed systems with zero-failure tolerance continuous live operation in demanding outdoor environments across multiple time zones and venues.
- Prior to 2019: 8 years delivering real-time timing data visualisation and broadcast graphics systems for F1H2O events across 90+ race broadcasts (as broadcast-side developer).

Product Manager & Software Developer Cinegy Title / Title Studio 2021 – Present
Cinegy GmbH · Bristol, UK / Remote

- Co-Product Manager and developer for Cinegy Title and Title Studio, covering the broadcast graphics engine and operator-facing design interface.
- Led UI modernisation for real-time broadcast graphics workflows; migrated cloud microservices frontend from hardcoded configs to dynamic API-driven architecture with Bearer token auth.
- Worked closely with real-time video pipelines and data-driven broadcast workflows
- Contributed to cloud-native migration of broadcast systems using Docker and AWS.

Senior Software Developer & DevOps Engineer 2013 – 2021
Demirören TV Holding · Istanbul, Turkey

- Built broadcast automation systems for live sports and election coverage across multiple national TV channels real-time graphics, logos, and data integration.
- Architected and operated systems under strict latency and reliability constraints in continuous live broadcast environments.
- Improved deployment reliability through CI/CD pipelines, Docker, and automation tooling.

Software Team Lead 2006 – 2013
Unica Technology (Fstats Broadcasting) · Istanbul, Turkey

- Led development of one of Turkey's first real-time sports statistics platforms, delivering live data APIs to broadcasters and media partners.
- Delivered 1,500+ live sports broadcasts across football, basketball, volleyball, and international tournaments.
- Managed and mentored development team while remaining hands-on across architecture and implementation.

SELECTED PROJECTS

AlterVision / AdSwap.ai Real-time pitch-side advertisement replacement for broadcast video.

- End-to-end: ingestion → segmentation → tracking → perspective-aware replacement → output. Detectron2 + RAFT optical flow + homography. 15–18 FPS on RTX 5070 Ti. adswap.ai

F1H2O AI-Assisted Race Timing Computer vision integrated into live international race timing.

- Faster R-CNN boat detection on NDI/FFmpeg frame pipeline. Outperformed manual timing consistency in field testing. Now complemented by MyLAPS GPS transponder integration (2026).

GP Optimisation Capstone (Imperial College) Black-box optimisation using Gaussian Process surrogate models.

- Implemented GP-based Bayesian optimisation across F1–F8 benchmark functions (2D–8D input spaces). Custom acquisition strategies including spread-based sampling for low-signal functions. Full pipeline on GitHub (absoyak).

CV Playground (GitHub: absoyak) Ongoing public experimentation repository.

- CUDA vs CPU benchmarking, model evaluations, NDI frame capture scripts, detection experiments updated weekly.

EDUCATION

Professional Certificate in Machine Learning & Artificial Intelligence 2025 – 2026
Imperial College London

- Bayesian optimisation (Gaussian Processes, acquisition functions), deep learning fundamentals, transformer architectures, model evaluation, hyperparameter tuning.
- Ranked in top cohort 100% on all assessed coursework and quizzes throughout the programme. Alumni status conferred on completion.
- Built full optimisation pipelines using Gaussian Process models and custom acquisition strategies

Computer Technology & Programming Valedictorian (4.00 GPA) 2005
Bilkent University, Ankara, Turkey

ADDITIONAL

- Specialised in deploying ML systems under real-world constraints, with hands-on operation of mission-critical systems at international live events across Europe, the Middle East, and Asia.
- AWS certified; comfortable across full deployment stack from GPU inference to cloud microservices.
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