Intelligent Computer Systems and Applications (ICSA)

Harokopio University of Athens (HUA)

Who we are: lab profile

- Harokopio University of Athens (HUA) is a public university in Greece
- School of Digital Technology:
  - Aims at advancing sciences related to information acquisition, enrichment and processing, and related services and applications
  - The department of Informatics and Telematics offers B.Sc. Degrees and postgraduate programmes that result in Master and PhD degrees
- 23 faculty members, >10 Post doctoral researchers, >50 PhD candidates, several technical laboratory staff members
- Institute of Computer Systems and Applications (ICSA)
  - More than 30 members (7 Professors, Post-Doc, PhD, MSc students)
  - Participation in more than 25 R&D funded projects
  - Publications in top journals and conferences
  - Experience in Project Coordination of Horizon Europe programs
  - Extensive experience in Proposals Writing

ICSA

Learn about us: www.icsa.hua.gr

Intelligent Computer Systems and Applications - Expertise at a glance

- Network architectures and technologies:
  - Intelligent transport systems' standards and protocols
  - Vehicular communications (V2X) & Unmanned Aerial Systems
  - High-speed wireless access networks & mobile communications (5G, 6G)
  - Software-Defined Networking (SDN), Networks Functions Virtualization (NFV), Management & Orchestration (MANO)
- Services and applications:
  - Highly automated driving functions, perception and control
  - AI-enabled optimization (non-causal reasoning, ML, RL, FL, etc.)
  - Optimization and performance evaluation of wireless systems
  - Electronic healthcare systems and applications

Technology acceptance modeling

TELECOM

- AI-driven spectrum, traffic, and load prediction for adaptive 5G/6G networking
- Predictive QoS/QoE modeling and dynamic routing optimization
- AI-enabled network management, orchestration, and zero-touch automation (SDN/NFV/MANO/ZSM)
- Edge computing (MEC), caching, and network slicing for latency-critical verticals
- Software-Defined Networking architectures for adaptive control, anomaly detection, and performance optimization
- Software-Defined Vehicles (SDV) and vehicular networking architectures for next-generation mobility systems
- V2X, D2D, and proximity-based communications for automated mobility
- Radio resource management and predictive scheduling in mobile/vehicular networks
- Design and evaluation of VANETs
- Integration of terrestrial and non-terrestrial networks toward 6G architectures
- Operational, live smart campus collecting real data

INTELLIGENT TRANSPORT

- Advanced sensor fusion (LiDAR, camera, radar) and robust perception in complex and adverse conditions
- Real-time object detection, tracking, and urban navigation with pedestrians and cyclists
- Deep and reinforcement learning for autonomous driving, planning, and control
- Human-like driving behavior modeling, imitation learning, and explainable AI
- Secure V2X communications, cooperative perception, and traffic optimization
- Fleet management, routing optimization, and shared autonomous mobility services
- User-centric mobility, natural language human–vehicle interaction, and trust-aware UX design
- Ethical decision-making, public acceptance, and sustainable autonomous mobility

AI expertise

Research Areas:

- Computer Vision
- Large Language Models
- Responsible & Explainable AI
- Reinforcement Learning

Tools:

- Python, PyTorch, TensorFlow
- Hugging Face, LangChain
- Docker, Cloud Platforms

Assets/Artefacts:

- Trained Models & Model Pipelines
- Curated Datasets & Benchmarks
- AI Prototypes & Proofs of Concept
- Research Publications & Technical Reports
- Reusable Codebases & APIs

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