

Ali Soltaninezhad

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PhD Candidate, Computer Vision — Applied Science Intern Candidate

First-author at ICPR, CRV & Knowledge-Based Systems. I turn vision research into deployed, production-scale systems.

First-author publications at top venues **8× faster inference at preserved accuracy** **Research deployed to industry**

RESEARCH FOCUS

Computer vision and robust video understanding — lightweight spatio-temporal action detection, motion-aware perception, and privacy-preserving methods for challenging real-world data. My work targets the gap between benchmark performance and production deployment, where efficiency, occlusion, and scale break standard models, and spans first-author research (ICPR, CRV, Knowledge-Based Systems) through deployment into an industry monitoring platform.

EDUCATION

Ph.D., Electrical & Computer Engineering — University of Victoria

Jan 2023 – Present

Expected graduation: April 2027 (flexible) • GPA 9.0 / 9.0 • Supervisor: Dr. Alexandra Branzan Albu

Relevant coursework: Computer Vision (A+), Medical Image Processing (A+), Data Mining (A+)

M.Sc., Electrical Engineering (Digital Electronic Systems) — Iran University of Science & Technology 2018 – 2022

B.Sc., Electrical Engineering (Electronics) — Ferdowsi University of Mashhad

2014 – 2018

PUBLICATIONS

- **A. Soltaninezhad**, M. Cote, A. Rico Espinosa, T. Porto Marques, A. Branzan Albu. “TubeLite: Lightweight Multi-Actor Spatio-Temporal Action Detection.” *ICPR*, 2026.
- **A. Soltaninezhad**, M. Cote, A. Rico Espinosa, et al. “TrapCounter: Integrating Detection, Tracking and Optical Flow for the Automatic Counting of Active Fishing Traps.” *Conference on Computer and Robot Vision (CRV)*, 2025.
- H. A. Dehkordi, **A. Soltaninezhad**, H. Kashiyan, S. B. Shokouhi, A. Ayatollahi. “Multi-Expert Human Action Recognition with Hierarchical Super-Class Learning.” *Knowledge-Based Systems* (IF 8.0), 2022.
- **A. Soltaninezhad**, H. A. Dehkordi, S. S. Ashrafi, S. B. Shokouhi. “To Transfer or Not To Transfer (TNT): Action Recognition in Still Images Using Transfer Learning.” *ICCKE*, 2021.

RESEARCH EXPERIENCE

Graduate Researcher (Applied Computer Vision) — Computer Vision Lab, University of Victoria Jan 2023 – Present

Industry deployment partnership with Archipelago Marine Research (FishVue platform)

- Designed a lightweight transformer for spatio-temporal action detection that **cut inference cost ~8×** at preserved accuracy, enabling real-time video processing at deployment scale (TubeLite, ICPR 2026).
- **Took research from prototype to production**: deployed models into Archipelago’s FishVue platform (**winner, 2026 VIATEC Innovative Excellence Award**), owning the end-to-end pipeline from raw maritime footage to live predictions.
- Built an automated trap-counting system fusing detection, tracking, and optical flow, validated against manual ground-truth counts for reliable real-time monitoring (TrapCounter, CRV 2025).
- Developed motion-aware, privacy-preserving methods that improve robustness to occlusion, glare, and motion blur (cross-dataset evaluation) while reducing identity leakage.

Research Assistant — Computer Vision Lab, Iran University of Science & Technology

2018 – 2022

- Co-developed a multi-expert human-action-recognition framework with hierarchical super-class learning (*Knowledge-Based Systems*, IF 8.0); designed and trained the deep models in PyTorch.

TEACHING

Course Instructor & Senior Teaching Assistant — University of Victoria

2023 – 2026

- Sole instructor, ECE 435 / BME 403 (Medical Image Processing); lead TA for ECE 471 (Computer Vision) and ECE 527 (Applied Data Analysis). President’s Fellowship in Research-Enriched Teaching (\$10,000), 2025.

TECHNICAL SKILLS

- **Languages**: Python, C/C++, MATLAB, SQL
- **ML / Research**: PyTorch, scikit-learn, OpenCV, NumPy, Pandas; deep learning, transformers, action detection, video understanding, transfer learning, large-scale experimentation
- **Systems**: Docker / containers, CI/CD (GitHub Actions), Git, unit testing, Linux, PostgreSQL / SQLite

HONORS & AWARDS

- Contributor, 2026 VIATEC Innovative Excellence Award (FishVue / Archipelago). • Top 1% (B.Sc.) & Top 3% (M.Sc.), Iran Nationwide University Entrance Exams.