Heraklion, Crete, Greece
Open to relocation
ammarkov@gmail.com

Ammar Qammaz

Software / Research / Computer Vision / Robotics / AI

ammar.gr
github.com/AmmarkoV/
linkedin.com/ammarkov/

13+ years of tracked experience in C / C++, 10+ years working on research projects specializing on Computer Vision as member of the Computer Vision and Robotics Laboratory of FORTH, the largest research institute in Greece. **Areas of expertise:** Computer Vision, Artificial Neural Networks, 3D human perception and pose estimation, Real-Time Computing, Robotics, HCI. **Impact:** Among the top most active Github developers in Greece, Author of MocapNET one of the few 3D total Human Pose estimation methods in the world, **483+ citations** in top-tier conferences including CVPR, ICPR, BMVC, ICCVW, in charge of the human perception stack of EU FP7 Hobbit robot, a.k.a. first robot trials in houses of elderly people in human history, GNU/Linux enthusiast, various FOSS contributions.

Projects

Magician, iMmersive leArninG, ImperfeCtion detectIon repAir human-robot interactioN (EU Grant no.101120731) **2024 — Present**
- Technical lead on the sensing work packages providing a neural network based solution for defect repair in industrial assembly lines.

Greece 4.0 (TAEDR-0535864), Scene understanding based on visual information (KA 11413, No. 90213) **2024 — Present**
- Technical lead, providing a distributed computer vision neural network pose estimation and scene understanding for industrial use.

CardioSCOPE, Empowering scientists for the “omics” era (MSCA SE project funded by EU Grant no.101086397) **2023 — 2024**
- Trained in High-performance liquid chromatography and Liquid chromatography–mass spectrometry in B.S.N. srl

AUTO-MNET, BonsApps (EU H2020 Grant no.101015848) AI Talent grant (Winner No. Bons_1OC_20) **2022 — 2023**
- Technical lead, providing an embedded 3D real-time driver body pose estimation framework for cars to ensure safe driving.

I.C.HUMANS, HFRI (ΕΛΙΔΕΚ Proj. No. 91) **2021 — 2022**
- Unobtrusive capturing of human motion, articulation and semantics.

Mingei, EU H2020 grant no. 822336 **2018 — 2020**
- 3D pose estimation from RGB videos of experts performing various historically important procedures for cultural preservation

Co4Robots, EU H2020-ICT-2016-1-73186 **2017 — 2019**
- Preparing deliverables, experiments on real-time RGB human perception on the ROS platform

Remote Acceleration service for low-Power Integrated systems and Devices (RAPID), EU H2020-ICT-644312 **2015 — 2017**
- 3D hand tracking from RGBD using heterogeneous computing for low-power integrated systems and devices

Hobbit The Mutual Care Robot, EU FP7-ICT-288146 **2013 — 2015**
- In charge of implementing the RGBD human perception stack of the Robot, emergency user fall detection, system design/tuning, web interface using my embedded AmmarServer, review meeting demos and on-site support on live trials.

Robohow.cog, EU FP7-ICT-288533 **2013 — 2015**
- Integration of FORTH 3D Hand Pose estimation and 3D Object Tracking framework with ROS and the PR2 robot, Work on force sensing based on vision (See CVPR ’15 Publication), 3D tracking performance improvements (See BMVC ’15 Publication).

GuarddoG Robot Project, BSc Thesis **2008 — 2012**
- Software and hardware for a small autonomous wheeled robot for domestic security and surveillance designed from scratch.

Experience

Post-doc Research Assistant **Mar 2024 — Present**
Computer Vision and Robotics Lab, Institute of Computer Science, Foundation of Research and Technology Heraklion
- Greece 4.0, Digital Transformation Technologies in the Greek Manufacturing Industry (TAEDR-0535864). Scene understanding based on visual information (KA 11413, No. 90213)
- Magician, (EU Grant no.101120731)Technical lead on the sensing work packages providing a computer vision neural network based solution for defect repair in industrial assembly lines.

PhD Graduate Research Assistant **Jan 2019 — Apr 2024**
Computer Vision and Robotics Lab, Institute of Computer Science, Foundation of Research and Technology Heraklion
- Involvement in I.C.HUMANS, SustAGE, Mingei Projects and BonsAPPs 1st Support program.
- Created MocapNET and Hierarchical Coordinate Descent algorithm for real-time 3D body and hand pose estimation from RGB.

MSc Graduate Research Assistant **Jan 2015 — Jan 2019**
Computer Vision and Robotics Lab, Institute of Computer Science, Foundation of Research and Technology Heraklion
- Involvement in Co4Robots, RAMCIP and RAPID Projects
- 3D Human pose estimation from RGBD video using a 3D reconstruction of the subject. 3D Hand Tracking and Gesture recognition.

Software Research Engineer **Jan 2013 — Jan 2015**
Computer Vision and Robotics Lab, Institute of Computer Science, Foundation of Research and Technology Heraklion
- Involvement in Hobbit, Robohow.cog Projects
- Model based 3D Hand and Object Pose Estimation from RGBD, developed RGBDAcquisition a framework for 3D data acquisition.

Communication systems operator **Nov 2010 — Aug 2011**
Hellenic Army
- Served as a communication systems operator on the HNDGS-NATO headquarters handling classified signals and state secrets.

Software Developer Freelancer **Oct 2005 — Nov 2010**

- Developed, hosted and maintained e-commerce platforms for car dealerships, jewellery stores, and small businesses.
- Shareware and freeware games, utilities, database software for medical clinics and dentists, still being used today on windows PCs.

Education

Doctor of Philosophy, Computational and Cognitive Vision and Robotics, University of Crete **Jan 2019 — Apr 2024**
Master of Science, Computational and Cognitive Vision and Robotics, University of Crete, GPA: 8.86/10.00 **Oct 2015 — Nov 2018**
Bachelor of Science, Computer Science, Athens University of Business and Economics, GPA: 6.51/10.00 **Sep 2004 — Sep 2012**

Awards & Honors

2022 **PhD work on MocapNET awarded a BonsApps (EU H2020 no.101015848) AI Talent grant (Winner No. Bons_1OC_20)**
2022 **PhD Scholarship to participate in the ARCHIMEDES Greek ML/AI Summer School after national selection.**
2021 **Recipient of the "Maria Michail Manasaki" Bequest Fellowship for the work carried out during the first year of my PhD**
2011 **Invited by the Greek Ministry of Development to showcase my BSc thesis robot in the Greek robotics portal innovation booth at the international thessaloniki fair, the largest annual expo event in Greece**
2008 **Robotics, best of Show Award for GuarddoG project in the Athens Digital Week event**
2003 **Chosen for International Olympiad of Informatics 2004 Greek team after national programming contest**

Technical Skills

Programming Languages C, C++, Python, SIMD Assembly, GLSL, CUDA, BASH, Java, PHP, Javascript, SQL, Matlab/Octave, FreePascal
Platforms GNU/Linux, Android, Windows, Embedded (ATMEL, AVR, RISCV, ESP, Arduino)
Frameworks OpenCV, OpenGL, OpenCL, Tensorflow, PyTorch, Keras, NumPy, PThreads, ROS, CMake, Git, WxWidgets
Research Interests Computer Vision, Machine Learning, Artificial Intelligence, Robotics, HCI, Embedded Computing

Nationality, Languages, Other Information & Interests

European/Greek Nationality, Native Greek speaker. English FCE, CPE Cambridge diplomas. INTJ Myers-Briggs personality type, O+ blood type. I enjoy tweaking my custom built Quadcopter, maintaining my open source repositories, gaming, amateur photography, sailing, reading books, good music, watching documentaries, latin dance and traveling.

Links

Google Scholar : https://scholar.google.com/citations?user=sDOdhtwAAAAJ, Github : https://github.com/AmmarkoV/, ORCID:0000-0002-1292-5866, YouTube: http://www.youtube.com/user/ammarkov, HackerRank : https://www.hackerrank.com/ammarkov, Linked-In : https://www.linkedin.com/in/ammarkov, Instagram : https://www.instagram.com/ammarkov1/, Spotify: Ammar Qammaz, Hugging Face: https://huggingface.co/AmmarkoV.

Selected Publications, full publication list available @ http://ammar.gr/publications/

1. Panagou, S. et al. Complexity based investigation in collaborative assembly scenarios via non intrusive techniques. Procedia Computer Science, 4th International Conference on Industry 4.0 and Smart Manufacturing (ISM 2022) 217, 478–485 (2023).
2. Qammaz, A. & Argyros, A. A Unified Approach for Occlusion Tolerant 3D Facial Pose Capture and Gaze Estimation using MocapNETs in International Conference on Computer Vision Workshops (AMFG 2023 - ICCVW 2023) (IEEE, Paris, 2023).
3. Qammaz, A. & Argyros, A. Compacting MocapNET-based 3D Human Pose Estimation via Dimensionality Reduction in International Conference on Pervasive Technologies Related to Assistive Environments (PETRA 2023) (ACM, Greece, 2023).
4. H. Hauser et.al., "Multimodal Narratives for the Presentation of Silk Heritage in the Museum", MDPI, vol. 5, pp. 461-487, 2022.
5. Qammaz, A. & Argyros, A. Towards Holistic Real-time Human 3D Pose Estimation using MocapNETs in British Machine Vision Conference (BMVC 2021) (BMVA, Nov. 2021).
6. Qammaz, A. & Argyros, A. Occlusion-tolerant and personalized 3D human pose estimation in RGB images in 2020 25th International Conference on Pattern Recognition (ICPR) (2021), 6904–6911.
7. Bajones, M. et al. Results of field trials with a Mobile service robot for older adults in 16 private households. ACM Transactions on Human-Robot Interaction (THRI) 9, 1–27 (2019).
8. Qammaz, A. & Argyros, A. A. MocapNET: Ensemble of SNN Encoders for 3D Human Pose Estimation in RGB Images. BMVC 2019.
9. Bajones, M. et al. Hobbit: providing fall detection and prevention for the elderly in the real world. Journal of Robotics (2018).
10. Qammaz, A., Michel, D. & Argyros, A. A hybrid method for 3d pose estimation of personalized human body models in 2018 IEEE Winter Conference on Applications of Computer Vision (WACV) (2018), 456–465.
11. T.-H. Pham, A. Kheddar, A. Qammaz and A.A. Argyros, "Capturing and Reproducing Hand-Object Interactions Through Vision-Based Force Sensing", In IEEE International Conference on Computer Vision Workshops (OUI 2015 - ICCVW 2015), IEEE, Santiago, Chile, November 2015.
12. Qammaz, A., Kyriazis, N. & Argyros, A. Boosting the Performance of Model-based 3D Tracking by Employing Low Level Motion Cues. in BMVC (2015), 144–1.
13. Pham, T.-H. et al. Towards force sensing from vision: Observing hand-object interactions to infer manipulation forces in Proceedings of the IEEE conference on computer vision and pattern recognition (CVPR) (2015), 2810–2819.