Name : Ahmed Elhayek
Department : C3S
Job Title : Head of the Artificial Intelligence department, Assistant professor
Contact Mail ID : A.elhayek@upm.edu.sa
Contact Number : 1161

"Highly motivated computer scientist with strong experience in Artificial Intelligence, computer vision, machine learning, image processing, software development and teaching. Selected Achievements:
1. Several TPAMI (IF: 17.86) and CVPR (AR: 22%) papers including CVPR 2020.
2. Google VR (Virtual Reality) Research Award
3. Published several papers with researcher from Stanford university, New York university, and Max-Planck institute.
4. Head and Founder of the first undergraduate Artificial Intelligence department in Saudi Arabia.
5. Winner of the Best paper award in the EuroVR 2018 conference."

Qualification :

- Degree : PhD in Computer Engineering
  Place : Max-Planck-Institute for Computer Science and Saarland University
  Date : December, 2015
  PhD Thesis : Human Motion Capture in General Uncontrolled Environments with Sparse Multi-camera Setup
  Advisor : Prof. Christian Theobalt

- Degree : M.Sc in Computer Science
  Place and Date : Saarland University - September, 2010
  Master Thesis : Simultaneous Interpolation and Deconvolution Approach to 3D Reconstruction of Cell Images
  Thesis Advisor : Prof. Joachim Weickert
  Selected courses : Machine Learning, Image Processing and Computer Vision, Optimization for Visual Computing, Artificial Intelligence, Differential Equations in Image Processing and Computer Vision, Introduction to Image Acquisition Methods.

- Degree : B.Sc in Computer Science and Engineering (5 years)
  Place and Date : The Islamic University of Gaza, Gaza – March 2007
  GPA : Second rank with a cumulative GPA of 92.6%
  Bachelor Thesis : Using Natural Language Processing in Recognizing Arabic Texts"

Research Interest :

- Computer vision
- Deep learning

Publications :

- **Journal Papers:**

[1] J.Malik, S. Shimada, A. Elhayek, S. A. Ali, V. Golyanik, C. Theobalt, D. Stricker:
HandVoxNet++: 3D Hand Shape and PoseEstimation using Voxel-Based Neural Networks,
Accepted at Transactions on Pattern Analysis and Machine Intelligence (TPAMI) 2021. (Impact factor: 17.86)

[2] M. Almadani, A. Elhayek, J. Malik, D. Stricker:
Graph-Based Hand-Object Meshes and Poses Reconstruction With Multi-Modal Input,
Accepted at the journal of IEEE Access, 2021.

[3] A. Elhayek:
Fully Automatic Multi-Object Articulated Motion Tracking,
Accepted at the journal of IISTE-Computer Engineering and Intelligent Systems, 2021.

[4] J. Malik, A Elhayek, S. Guha, S. Ahmed, A. Gillani, D. Stricker:
DeepAirSig: End-to-End Deep Learning Based in-Air Signature Verification
Accepted at IEEE Access 8, 195832-195843

[5] M. R. AlKoutayni, V. Rybalkin, J. Malik, A. Elhayek, C. Weis, G. Reis, N. Wehn, D. Stricker:
Real-Time Energy Efficient Hand Pose Estimation: A Case Study
Accepted at Sensors Journal, 2020. (Impact Factor: 3.031)

[6] J. Malik, A. Elhayek, D. Stricker:
WHSP-Net: A Weakly-Supervised Approach for 3D Hand Shape and Pose Recovery from a Single Depth Image,
Accepted at Sensors Journal, vol. 19, no. 17, 2019. (Impact Factor: 3.031)

[7] J. Malik , A. Elhayek, F. Nunnari, D. Stricker:
Simple and effective deep hand shape and pose regression from a single depth image,
Accepted at Computers & Graphics (CAG) 85 pages 85-91 ELSEVIER, 2019. (Impact Factor: 1.86)

[8] O. Kovalenko, V. Golyanik, J. Malik , A. Elhayek, D. Stricker:
Structure from Articulated Motion: An Accurate and Stable Monocular 3D Reconstruction Approach without Training Data,
Accepted at Sensors Journal, vol. 19, no. 20, 2019. (Impact Factor: 3.031)

[9] J. Malik, A. Elhayek, S. Ahmed, F. Shafait, M. I. Malik, D. Stricker:
3DAirSig: A Framework for Enabling In-Air Signatures Using a Multi-Modal Depth Sensor, Accepted at Sensors Journal, vol. 18, no. 11, 2018. (Impact Factor: 3.031)

[10] A.Elhayek, E. Aguiar, A.Jain, J. Tompson, L. Pishchulin, M. Andriluka, C.Bregler,B. Schiele C. Theobalt:
MARCOnI - ConvNet-based MARker-less Motion Capture in Outdoor and Indoor Scenes, IEEE
Transactions on Pattern Analysis and Machine Intelligence (TPAMI) Journal, 2017. (Impact factor: 9.455)

[11] A. Elhayek, C. Stoll, K. I. Kim, H.-P. Seidel, C. Theobalt:
Outdoor Human Motion Capture by Simultaneous Optimization of Pose and Camera Parameters, Computer Graphics Forum (CGF), 2014.

[12] N. Persch, A. Elhayek, M. Welk, S. Grewenig, K. Narr, A. Kraegeloh, J. Weickert:
Enhancing 3-D Cell Structures in Confocal and STED Microscopy: A Joint Model for Interpolation, Deblurring and Anisotropic Smoothing, Measurement Science and Technology,
vol. 24, no. 12, 125703, 2013. Revised version of Technical Report No. 321, Department of Mathematics, Saarland University, Germany, 2013.

- **Conference Papers:**

[1] A. T. Aboukhadra, J. Malik, A. Elhayek, N. Robertini, D. Stricker,
THOR-Net: End-to-end Graformer-based Realistic Two Hands and Object Reconstruction with Self-supervision,
Accepted at the IEEE/CVF Winter Conference on Applications of Computer Vision, 2023

[2] J.Malik, I. Abdelaziz, A. Elhayek, S. Shimada, S. A. Ali, V. Golyanik, C. Theobalt, D. Stricker: HandVoxNet: Deep Voxel-Based Network for 3D Hand Shape and Pose Estimation from a Single Depth Map,
Accepted at IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2020, Washington (acceptance rate: 22 %).

[3] J. Malik , A. Elhayek, D. Stricker:
DeepHPS: End-to-end Estimation of 3D Hand Pose and Shape by Learning from Synthetic Depth, Accepted at the International Conference on 3D Vision (3DV), 2018, September 5-8, Verona, Italy.

[4] A. Elhayek, P. Murthy, O. Kovalenko, J. Malik , D. Stricker:
Fully Automatic Multi-person Human Motion Capture for VR Applications,
Accepted at EuroVR, 2018, London, United Kingdom.

[5] J. Malik, A. Elhayek, D. Stricker:
Structure-aware 3D Hand Pose Regression from a Singl”

Other Accreditation:

- Supervisor of many PhD students at the German institute of Artificial Intelligence