Assist. Prof. M. FURKAN KIRAÇ

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EDUCATION:

Sep'02 – Sep'13	**Bogazici University**
	PhD in Computer Engineering, GPA 3.94
	Adviser: Prof. Lale Akarun
	Thesis: Real-time Human Hand Pose Estimation and Tracking using Depth Sensors
Sep'00 – Jun'02	**Bogazici University**
	MS in Systems and Control Engineering, GPA 4.00
	Adviser: Prof. Ümit Bilge
	Thesis: Genetic Algorithm Approach to Parallel Machine Total Tardiness Problem
Sep'96 – Jun'00	**Bogazici University**
	BS in Mechanical Engineering, GPA 3.31

RESEARCH INTERESTS:

Computer Vision, Machine Learning, Deep Learning

TEACHING INTERESTS:

Computer Vision, Machine Learning, Programming Languages, Embedded Programming, Computer Organization, Cross-platform Development, Mobile/Web Development, Software Engineering

EXPERIENCE:

Sep'18 – …	Visual Cognition Technologies Inc. (VC-TEK),	*Istanbul / Turkey*
	Founder Partner & CEO, Computer Vision Based R&D Firm	
Sep'13 – …	Assist. Prof., Computer Science Department,	*Ozyegin University*
Sep'12 – Aug'13	Part-time Instructor, Computer Science Department,	*Ozyegin University*
Apr'09 – Aug'13	Research Assistant, Computer Engineering Department,	*Bogazici University*
Sep'09 – Aug'13	Teaching Assistant, Computer Engineering Department,	*Bogazici University*
	- CMPE537, Computer Vision, Fall 2009	
	- CMPE150, Introduction to Computing, Spring 2012	
May'09 – Jan'10	Fortibase Corporation	*Istanbul / Turkey*
	Founder Partner & IT Manager, Computer Vision based R&D firm	
Jul'00 – Apr'09	Proksima Corporation	*Istanbul / Turkey*
	Founder Partner & IT Manager, Computer Vision based R&D firm	

AWARDS and ACHIEVEMENTS:

2012   3rd place in best demo award, SIU 2012, Muğla, Turkey.

2012   Best application paper award, SIU 2012, Muğla, Turkey.

2008   Programmed the first Computer Vision based Gas Filling Automation System.
        Used for automatic filling of gas tanks for a major Turkish energy company.

2006   Ported the tire design software INFMT/G from Fortran'77 VAX to today's PCs.
        The code is actively being used for tire development in BRISA.

2005   2nd place in best paper award, SIU 2005, Kayseri, Turkey.

2004   Programmed the first Computer Vision based Filling Quality Control Automation System.
        Software is currently being used in BP Gas at Yarimca, Turkey.

2003   Programmed the first Turkish License Plate Recognition Software Platasis®.
        Software is currently being used widely in Turkey.

2001   Programmed fluid mechanics airflow simulator AIRSIM for a major Turkish brand Arçelik.
        Simulator has been used in the research phase of "Orbital" series refrigerators.

1995   Represented Turkey in London Int. Youth Science Forum'95. Sponsored by British Council.

1995   2nd degree in National High School Students Computer Research Project Competition.
        Project was an Operating System built on DOS which used a Windows 95 like GUI.
        Windows 95 was not released yet.

1995   2nd position in National Computer Science Olympiads III, Marmara Territory.

1995   3rd position in National Computer Science Olympiads III, Turkey.

1994   1st position in National Computer Science Olympiads II, Marmara Territory.

1994   3rd position in National Computer Science Olympiads II, Turkey.

SKILLS:

Spoken Languages:	Fluent English, intermediate German, native Turkish speaker.
Programming:	More than 30 years of C++ and C experience.
	Proficient modern C++ user: C++17, C++20
	Proficient in Python, Assembly (680x0, x86), Java, Javascript, Typescript
Operating Systems:	Extensive knowledge in Linux, Windows, Android OS, iOS, and AmigaOS.
Computer Graphics:	Knowledge of Blender, 3D Studio Max, Ogre Framework, Unity.
Distributed Computing:	OpenMP, OpenCL, OpenACC, MPI, Sun Grid Engine.
Cloud Computing:	GCP, AWS
Database Engines:	Extensive knowledge of SQL on PostgreSQL, Firebase, Dynamo.
Web Technologies:	Extensive knowledge on HTML, CSS, JavaScript, AJAX, React, React Native.

ACADEMIC SERVICE:

Reviewer in several top journals such as: Image and Vision Computing, Pattern Recognition Letters, Image Communications, Digital Signal Processing, Expert Systems with Applications, IEEE Journal of Biomedical and Health Informatics, IEEE Transactions on Cybernetics, IEEE Transactions on Industrial Informatics, IEEE Transactions on Multimedia, IET Computer Vision, Signal Image and Video Processing, Turkish Journal of Electrical Engineering and Computer Science, etc.

BOOK CHAPTERS:

1. C. Keskin, **F. Kıraç**, Y. E. Kara, L. Akarun, "Real-time Hand Pose Estimation Using Depth Sensors", Consumer Depth Cameras for Computer Vision: Research Topics and Applications, 2012.

PUBLICATIONS in INTERNATIONAL JOURNALS:

1. Kinli, F. and Kirac, F., 2020. FashionCapsNet: Clothing Classification with Capsule Networks. *International Journal of InformaticsTechnologies*, *13*(1).
2. Genç, A.E., Sözer, H., Kıraç, M.F. and Aktemur, B., 2019. ADVISOR: An Adjustable Framework for Test Oracle Automation of Visual Output Systems. *IEEE Transactions on Reliability*.
3. Kıraç, M.F., Aktemur, B., Sözer, H. and Gebizli, C.Ş., 2019. Automatically learning usage behavior and generating event sequences for black-box testing of reactive systems. *Software Quality Journal*, *27*(2), pp.861-883.
4. Göçer, Ö., Göçer, K., Özcan, B., Bakovic, M. and Kıraç, M.F., 2019. Pedestrian tracking in outdoor spaces of a suburban university campus for the investigation of occupancy patterns. *Sustainable cities and society*, *45*, pp.131-142.
5. Göçer, Ö., Göçer, K., Başol, A.M., Kıraç, M.F., Özbil, A., Bakovic, M., Siddiqui, F.P. and Özcan, B., 2018. Introduction of a spatio-temporal mapping based POE method for outdoor spaces: Suburban university campus as a case study. *Building and Environment*, *145*, pp.125-139.
6. Kıraç, M.F., Aktemur, B. and Sözer, H., 2018. VISOR: A fast image processing pipeline with scaling and translation invariance for test oracle automation of visual output systems. *Journal of Systems and Software*, *136*, pp.266-277.
7. Yilmaz, B., Aktemur, B., Garzarán, M.J., Kamin, S. and Kiraç, F., 2016. Autotuning runtime specialization for sparse matrix-vector multiplication. *ACM Transactions on Architecture and Code Optimization (TACO)*, *13*(1), pp.1-26.
8. Kirac, F., Kara, Y.E. and Akarun, L., 2014. Hierarchically constrained 3D hand pose estimation using regression forests from single frame depth data. *Pattern Recognition Letters*, *50*, pp.91-100.
9. Bilge, Ü., Kurtulan, M. and Kıraç, F., 2007. A tabu search algorithm for the single machine total weighted tardiness problem. *European Journal of Operational Research*, *176*(3), pp.1423-1435.
10. Bilge, Ü., Kıraç, F., Kurtulan, M. and Pekgün, P., 2004. A tabu search algorithm for parallel machine total tardiness problem. *Computers & Operations Research*, *31*(3), pp.397-414.

PUBLICATIONS in INTERNATIONAL CONFERENCES / WORKSHOPS:

1. Kinli, F., Ozcan, B. and Kirac, F., 2019. Fashion Image Retrieval with Capsule Networks. In *Proceedings of the IEEE International Conference on Computer Vision Workshops* (pp. 0-0).
2. Keskin, C., Kıraç, F., Kara, Y.E. and Akarun, L., 2013. Real time hand pose estimation using depth sensors. In *Consumer depth cameras for computer vision* (pp. 119-137). Springer, London.
3. Keskin, C., Kıraç, F., Kara, Y.E. and Akarun, L., 2012, October. Hand pose estimation and hand shape classification using multi-layered randomized decision forests. In *European Conference on Computer Vision* (pp. 852-863). Springer, Berlin, Heidelberg.
4. Keskin, C., Kirac, F., Kara, Y.E. and Akarun, L., 2012, June. Randomized decision forests for static and dynamic hand shape classification. In *2012 IEEE Computer Society Conference on Computer Vision and Pattern Recognition Workshops* (pp. 31-36). IEEE.
5. Keskin, C., Arı, I., Eren, T., Kıraç, F., Rybok, L., Ekenel, H., Stiefelhagen, R. and Akarun, L., 2010, July. Vision Based Hand Puppet. In *6th International Summer Workshop on Multimodal Interfaces* (p. 40).

PUBLICATIONS in NATIONAL JOURNALS/CONFERENCES:

1. Gocer, O., Gocer, K., Basol, A.M., Kirac, M.F., Ozbil Torun, A., Bakovic, M., Siddiqui, F.P. and Ozcan, B., 2020. Üniversite Dış Mekânları İçin Zaman-Mekânsal Haritalama Yöntemine Dayanan Bir Kullanım Sonrası Değerlendirme Modeli. *Megaron*, *15*(1).
2. Maxudov, N., Özcan, B. and Kıraç, M.F., 2016, May. Scene recognition with majority voting among sub-section levels. In *2016 24th Signal Processing and Communication Application Conference (SIU)* (pp. 1637-1640). IEEE.
3. Kıraç, F., Kara, Y.E., Keskin, C. and Akarun, L., 2012, April. Depth image based 3D hand pose estimation framework. In *2012 20th Signal Processing and Communications Applications Conference (SIU)* (pp. 1-2). IEEE.
4. Keskin, C., Kıraç, F., Kara, Y.E. and Akarun, L., 2012, April. 3D hand pose estimation and classification using depth sensors. In *2012 20th Signal Processing and Communications Applications Conference (SIU)* (pp. 1-4). IEEE.
5. Kıraç, F. and Akarun, L., 2011, April. Real-time pose tracking based on a 3D skeletal model using multiple cameras. In *2011 IEEE 19th Signal Processing and Communications Applications Conference (SIU)* (pp. 1133-1136). IEEE.
6. Kirac, F. and Akarun, L., 2005, May. Human hand tracking in image sequence using particle filter. In *Proceedings of the IEEE 13th Signal Processing and Communications Applications Conference, 2005.* (pp. 561-564). IEEE.