Curriculum Vitae Dec 2018

Yağız Aksoy

Contact Details

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HIGHER EDUCATION

2013.09 – present | Ph.D. in Computer Science | ETH Zürich
Thesis title: Intermediate Image Representations
Advisor: Prof. Marc Pollefeys
Planned defense date: April 2019

2011.09 – 2013.08 | M.Sc. in Electrical and Electronics Engineering | Middle East Technical University
Thesis title: Efficient Inertially Aided Visual Odometry towards Mobile Augmented Reality
Advisor: Prof. A. Aydın Alatan
Track: Signal Processing; Relevant courses: Statistical Signal Processing, Machine Vision, Video Processing, Artificial Intelligence, Mobile Robotics

2007.09 – 2011.07 | B.Sc. in Electrical and Electronics Engineering | Middle East Technical University
Senior year focus: Telecommunications; Relevant courses: Pattern Recognition, Digital Signal Processing, Medical Imaging

ACADEMIC EXPERIENCE

2013.09 – present | Research and Teaching Assistant | ETH Zürich
in Computer Vision and Geometry Lab supervised by Prof. Marc Pollefeys

2017.02 – 2018.02 | Visiting Ph.D. Student | Massachusetts Institute of Technology
in Computational Fabrication Group supervised by Prof. Wojciech Matusik

2013.09 – 2017.02 | Joint Ph.D. Student / Researcher | Disney Research Zürich
in Advanced Video Technologies group supervised by Aljoša Smolić

2011.07 – 2013.09 | Research and Teaching Assistant | Middle East Technical University
in Multimedia Research Group supervised by Prof. Aydın Alatan

2010.09 – 2011.06 | Undergraduate Research Assistant | Middle East Technical University
in Multimedia Research Group supervised by Prof. Aydın Alatan

2010.08 – 2010.09 | Undergraduate Research Intern | Technische Universität Berlin
at Institute of Telecommunication Systems supervised by Prof. Thomas Sikora

PUBLICATIONS

ACM Transactions on Graphics, 2018 | Semantic Soft Segmentation (Proc. SIGGRAPH)
Yağız Aksoy, Tae-Hyun Oh, Sylvain Paris, Marc Pollefeys, Wojciech Matusik
Proposes a way to fuse high-level information from a deep network with low-level information from the image through spectral decomposition. A new segmentation paradigm that brings together semantic segmentation and natural matting.
Premier venue in computer graphics. Covered by BBC News, NVIDIA news among others. Featured in SIGGRAPH Technical Papers Trailer.

Proc. ECCV, 2018 — Flash and Ambient Illumination Pairs from the Crowd
Yağız Aksoy, Changil Kim, Petr Kellnhofer, Sylvain Paris, M. Elgharib, M. Pollefeys, Wojciech Matusik
Introduces a new crowdsourcing methodology in which many people contribute unique photographs to create a computational photography dataset.
Top-tier conference in computer vision.

Proc. ACM CHI, 2018 — Crowd-Guided Ensembles: How Can We Choreograph Crowd Workers for Video Segmentation?
Alexandre Kaspar, Geneviève Patterson, Changil Kim, **Yağız Aksoy**, Wojciech Matusik, M. Elgharib
Deconstructs video segmentation that requires expert attention to small tasks that can be done by non-specialized crowd workers.
Top-tier conference in human-computer interaction.

ACM Transactions on Graphics, 2017 — Unmixing-Based Soft Color Segmentation for Image Manipulation
Yağız Aksoy, Tunç Ozan Aydın, Aljoša Smolić, Marc Pollefeys
The first soft color segmentation to enable high-quality image editing while decreasing the computational complexity by orders of magnitude. Includes in-depth theoretical and experimental analysis of all previous work on the subject.
Premier journal in computer graphics. Prototype delivered to Disney business units.

Proc. CVPR, 2017 — Designing Effective Inter-Pixel Information Flow for Natural Image Matting (Spotlight)
Yağız Aksoy, Tunç Ozan Aydın, Marc Pollefeys
A closed-form solution to natural matting which defines the state-of-the-art. The formulation can easily be extended to specialized filtering tasks.
Top-tier conference in computer vision. Prototype delivered to Disney business units.

Proc. GET, 2017 — AR Museum: A Mobile Augmented Reality Application for Interactive Painting Recoloring
Mattia Ryffel, Fabio Zünd, **Yağız Aksoy**, Alessia Marra, Maurizio Nitti, Tunç Aydın and Bob Sumner

ACM Transactions on Graphics, 2016 — Interactive High-Quality Green-Screen Keying via Color Unmixing
Yağız Aksoy, Tunç Ozan Aydın, Marc Pollefeys, Aljoša Smolić
Achieves higher-quality keying results than specialized artists while cutting down the interaction time by a magnitude.
Premier journal in computer graphics. Prototype delivered to Disney business units. Covered by Gizmodo among others.

Kaohsiung Journal of Medical Sci., 2014 — Impact of Transrectal Prostate Needle Biopsy on Erectile Function
Altuğ Tuncel, Uğur Toprak, Melih Balcı, Ersin Köseoğlu, **Yağız Aksoy**, Alp Karademir, Ali Atan

Proc. ICIP, 2014 — Uncertainty Modeling for Efficient Visual Odometry via Inertial Sensors on Mobile Devices
Yağız Aksoy, A. Aydın Alatan

Proc. ICIP, 2014 — Mastercam FVV: Robust Registration of Multiview Sports Video to a Static High-Resolution Camera
Florian Angehrn, Oliver Wang, **Yağız Aksoy**, Markus Gross, Aljoša Smolić

Proc. ECCV Workshops, 2012 — Utilization of False Color Images in Shadow Detection
Yağız Aksoy, A. Aydın Alatan

Proc. ICIP, 2012 — Interactive 2D-3D Image Conversion for Mobile Devices
Yağız Aksoy, Ozan Şener, A. Aydın Alatan, Kemal Uğur

PATENT APPLICATIONS

US Patent App., 2018 — Designing Effective Inter-Pixel Information Flow for Natural Image Matting
Yağız Aksoy, Tunç Ozan Aydın — App. No: US20180225827A1

US Patent App., 2018 — System and Method Facilitating Palette-Based Color Editing
Yağız Aksoy, Tunç Ozan Aydın, Marc Pollefeys, Aljoša Smolić — App. No: US20180005409A1

STUDENT SUPERVISION

2018.07 – 2019.01 — Patrick Larsen-Ledet — B.Sc. Thesis at ETH Zürich
Thesis topic: Evaluating Natural Image Matting Methods with a Novel Large-Scale Dataset

2018.07 – 2018.09 — Haitao Yang — co-sup. Zhaopeng Cui, Undergraduate Research Intern at ETH Zürich
Research topic: Data-Driven 3D Reconstruction and Meshing

2018.07 – 2018.09 — Ran Long — co-sup. Zhaopeng Cui, Undergraduate Research Intern at ETH Zürich
Research topic: Data-Driven 3D Reconstruction and Meshing

2018.03 – 2018.08	Jingwei Tan	co-sup. Tunç Aydın and Cengiz Öztireli, M.Sc. Thesis at Disney Research Zürich Thesis topic: Data-Driven Natural Image Matting
2018.03 – 2018.07	Shu Liu	Research Intern at ETH Zürich Research topic: Learning Linear System Parameters for Natural Image Matting
2017.09 – 2018.03	Shuang Wu	co-sup. Johannes Schönberger, M.Sc. Thesis at ETH Zürich Thesis topic: Improving Dense 3D Reconstruction through Multi-View Stereo Joint Filtering
2014.08 – 2015.02	Ming Zheng	co-sup. Aljoša Smolić, B.Sc. Thesis at Disney Research Zürich Thesis topic: Visual Hulls
2013.01 – 2013.08	Akın Çalışkan	Undergraduate Research Intern at Middle East Technical University Research topic: Visual Pose Tracking on Mobile Devices

TEACHING ACTIVITIES

2018.10	Guest Lecturer for Visual Computing	Senior-Level Class at ETH Zürich Covered Image Filtering, Image Features, Fourier Transform, and Optical Flow in 4 lectures.
2015 – 2017, 2019 fall semesters	Teaching Assistant for Visual Computing	Senior-Level Class at ETH Zürich Organized and restructured experimental sessions as leading TA (2019 fall). Designed and taught weekly tutorials that include in-depth theoretical analysis and experiments. Prepared and graded final examinations for $>$100 students.
2014 – 2016, 2018 spring semesters	Teaching Assistant for 3D Vision	M.Sc.-Level Class at ETH Zürich Helped structuring the research-oriented lectures as leading TA (2015, 2016, 2018). Defined and supervised semester-long research projects.
2011 – 2013 fall semesters	Teaching Assistant for Electrical Circuits Laboratory	Sophomore-Level Class at METU Supervised weekly laboratories for 40 students. Designed, supervised and graded semester-long design projects, written mid-term and experimental final examinations.
2011 – 2013 spring semesters	Teaching Assistant for Electronic Circuits Laboratory	Sophomore-Level Class at METU Supervised weekly laboratories for 40 students. Designed, supervised and graded semester-long design projects, written mid-term and experimental final examinations.
2008 – 2010	Debating Teacher	METU Debating Society Coached the university debating team competing nationally and internationally.

ACADEMIC SERVICE

Committee	International Program Committee member, SIBGRAPI 2018, Foz do Iguaçu
Reviewing	ACM Transactions on Graphics, IEEE Transactions on Pattern Analysis and Machine Intelligence, IEEE Transactions on Image Processing, Elsevier Image Communications, SIGGRAPH Asia, Eurographics, International Conference on Computer Vision and Pattern Recognition, European Conference on Computer Vision, International Conference on Image Processing
Membership	Student Member, Association of Computing Machinery (ACM) Member, The Computer Vision Foundation (CVF)
Organization	Registration Chair, European Conference on Computer Vision, 2014, Zürich
Participant	SIGGRAPH Doctoral Consortium, 2018, Vancouver *The first SIGGRAPH doctoral consortium brought together 8 Ph.D. students and 5 professors of computer graphics to discuss research and academic life after graduation.*

Invited Talks			
	2018.02	Princeton University	hosted by Adam Finkelstein
	2017.12	Stanford University	hosted by Ohad Fried
	2017.12	Dolby Research	hosted by Alexandre Chapiro
	2017.09	Brown University	hosted by James Tompkin
	2017.03	MIT	CSAIL Graphics Seminar
	2013.03	ETH Zürich	hosted by Marc Pollefeys
	2013.02	RWTH Aachen	hosted by Bastian Leibe