Curriculum Vitae - Süheyla Çetin Karayumak

Personal Information

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Affiliation

PhD Candidate,Vision and Pattern Analysis Laboratory, Faculty of Engineering and Natural Sciences, Sabanci University, Istanbul, Turkey.

Academic Interests

Medical Image Analysis, Image Segmentation, Human Body Visualization, CT/CTA, Magnetic Resonance Imaging, Diffusion Tensor Imaging, Modelling of Vasculatures.

Education

PhD Candidate in Computer Science and Engineering department at Sabanci University, (August 2016, CGPA: 3.81) Thesis advisor: Gözde Ünal.

Masters degree in Electronics Engineering department from Sabanci University (2009-11, CGPA: 3.79) Thesis advisor: Gözde Ünal. Thesis title: Vessel Tractography Using An Intensity Based Tensor Model.

Bachelor degree in Computer Engineering department from Yeditepe University (2004-2009, CGPA: 3.48) Thesis advisor: Dionysis Goularas. Thesis title: A Medical Application For Data Visualization and 3D Reconstruction In Virtual Surgery.

Professional Experiences

Research Assistant at Sabanci University

- Vessel Orientation Constrained Quantitative Susceptibility Mapping (QSM) Reconstruction (ongoing).
- Elucidating Intravoxel Geometry in Diffusion-MRI: Asymmetric Orientation Distribution Functions (AODFs) (2015-2016).
- A Higher Order Tensor Tractography for Segmentation of Vascular Structures (2014-2015).
- Automatic detection of coronary artery stenosis in CTA based on vessel intensity and geometric features (2013-2014).
- Vessel Tractography Using An Intensity Based Tensor Model (2012-2013).
- Assessment of Fluid Tissue Interaction Using Multi-Modal Image Fusion for Characterization and Progression of Coronary Atherosclerosis (granted by Tubitak 108E162) (2011-12).
- Novel Medical Image Analysis Methods for Cancer Treatment Monitoring (granted by Tubitak 108E126)(2009-2010).

Teaching Assistant at Sabanci University

- TE 407, Computer Vision (Fall 2010, 2011, 2012, 2013, 2014)
- Math 203, Introduction to Probability (Fall 2009)
- CS 201, Introduction to Computing (Spring 2010, 2013)
- CS 305, Programming Languages (Spring 2012)

Internship at Microsoft Research Cambridge (June-September 2010)
Deformable Organ Motion Modeling using Gaussian Processes and their Spectra.

Internship at Yeditepe University Virtual Reality Lab (2008)

Journal Papers

Suheyla Cetin, Evren Ozarslan, Gozde Unal, "Asymmetric orientation distribution functions (AODFs) revealing intravoxel geometry in diffusion MRI", *Neuroimage* (under review).

Efe Ilicak, Suheyla Cetin, Elif Bulut, Kader Karli Oguz, Emine Ulku Saritas, Gozde Unal and Tolga Cukur, "Targeted vessel reconstruction in non-contrast-enhanced steady-state free precession angiography", *NMR in Biomedicine* Volume 29, Issue 5, pages 532-544, May 2016.

Suheyla Cetin, Gozde Unal, "A Higher-Order Tensor Vessel Tractography for Segmentation of Vascular Structures," *IEEE Transactions on Medical Imaging*, vol.34, no.10, pp.2172-2185, Oct. 2015, doi: 10.1109/TMI.2015.2425535.

Suheyla Cetin, Gozde Unal, Ali Demir, Anthony Joseph Yezzi, Muzaffer Degertekin, "Vessel tractography using an intensity based tensor model with branch detection", *IEEE Transaction on Medical Imaging*, vol.32, no.2, pp.348-363, Feb. 2013, doi: 10.1109/TMI.2012.2227118.

H.A. Kirisli et al., "Standardized evaluation framework for evaluating coronary artery stenosis detection, stenosis quantification and lumen segmentation algorithms in Computed Tomography Angiography", *Medical Image Analysis*, Volume 17, Issue 8, December 2013, Pages 859-876, ISSN 1361-8415.

Conference Papers

Suheyla Cetin, Berkin Bilgic, Audrey Fan, Samantha Holdsworth, Gozde Unal, "Vessel Orientation Constrained Quantitative Susceptibility Mapping (QSM) Reconstruction", *Medical Image Computing and Computer Assisted Intervention (MICCAI)*, 2016 (accepted).

Suheyla Cetin, Evren Ozarslan, Gozde Unal, "Elucidating Intravoxel Geometry in Diffusion-MRI: Asymmetric Orientation Distribution Functions (AODFs) Revealed by a Cone Model", *Medical Image Computing and Computer-Assisted Intervention – MICCAI*, 2015 Volume 9349 of the series Lecture Notes in Computer Science pp 231-238.

Suheyla Cetin, Emine U. Saritas, Gozde Unal, "Vessel tractography for magnetic particle imaging angiography," *Magnetic Particle Imaging (IWMPI), 2015 5th International Workshop on* , 26-28 March 2015, doi: 10.1109/IWMPI.2015.7107036.

Suheyla Cetin, Gozde Unal,"A cerebral blood vessels segmentation method using a flux based second order tensor model", *Signal Processing and Communications Applications Conference (SIU)*, 2014.

Suheyla Cetin, Gozde Unal, "Automatic detection of coronary artery stenosis in CTA based on vessel intensity and geometric features", *3D Cardiovascular Imaging: a MICCAI segmentation challenge*, 2012, Nice, France.

Suheyla Cetin, Gozde Unal, Muzaffer Degertekin, "Automatic Branch and Stenoses Detection in Computed Tomography Angiography", *IEEE International Symposium on Biomedical Imaging (ISBI)*, 2012, Barcelona, Spain.

Suheyla Cetin, Gozde Unal, Ali Demir, Anthony Joseph Yezzi, Muzaffer Degertekin, "Vessel tractography using an intensity based tensor model", *MICCAI Workshop on Computing and Visualization for (Intra)Vascular Imaging (CVII)*, 2011, Toronto, Canada.

Conference Abstracts

Suheyla Cetin, Audrey P. Fan, Berkin Bilgic, Kevin Setsompop, Gozde Unal, "Semi-automated visualization and segmentation of cerebral veins from QSM ", *International Society for Magnetic Resonance in Medicine 23rd Scientific Meeting*, Toronto, Canada, 2015.

Awards and Honors

Student Travel Award at MICCAI 2016 Conference.
ISMRM Merit Award Magna Cum Laude 2015.
Student Travel Award at MICCAI 2015 Conference.
The algorithm of our "Automatic detection of coronary artery stenosis in CTA based on vessel intensity and geometric features" work took the top place at the Challenge "Rotterdam Coronary Artery Stenoses Detection and Quantification Evaluation Framework, 2012" in the Stenoses Detection category with the average ranking evaluation.
Tubitak BIDEB Scholarship, 2012-ongoing
Masters Degree with High Honor, 2011
Tubitak Project Scholarship, 2009-2011
Undergraduate degree with Honor, 2009

Reviewing Services

IEEE Transactions on Medical Imaging, IEEE Transactions on Biomedical Imaging, IEEE Transactions on Image Processing, Medical Image Computing and Computer Assisted Intervention.

Computer skills

Programming, scripting and markup languages C, C++, Matlab, LaTeX, Java, C#, SQL, PHP/Html, Python.

Operating systems Windows XP/Vista/7, Linux, Mac OS.

Open source projects Qt, VTK, ITK, Opengl, Opencv.

LANGUAGE SKILLS **Turkish**: Native tongue. **English**: Advanced. **German**: Fair.

REFERENCES

Supervisor : Assoc. Prof. Gözde Ünal
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Assist. Prof. Evren Ozarslan
Department of Biomedical Engineering , Linköping University
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Electronics Engineering Faculty Member at Sabanci University
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