
Salim Arslan, PhD

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Personal Statement

I have been doing research in the field of biomedical image computing and medical computer vision for the last 7+ years with the focus of designing and implementing automated systems using machine learning. My research interests include multi-modal image segmentation and classification, non-linear feature reduction, unsupervised learning, data clustering, and network analysis. I am always looking for new challenges where I can make use of my skills and expertise.

Employment

- **EPSRC Doctoral Fellow**, Department of Computing, Imperial College London 2017 - present
 - **Postdoctoral Research Associate**, Department of Computing, Imperial College London 2017 - present
 - **Research Assistant**, Department of Computer Engineering, Bilkent University 2010 – 2013
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Qualifications

- **PhD** in Medical Image Analysis, Imperial College London 2013 – 2017
Dissertation: Connectivity-Driven Parcellation Methods for the Human Cerebral Cortex
 - **MSc** in Computer Engineering, Bilkent University (summa cum laude, GPA: 4.00) 2010 – 2012
Thesis: Perceptual Watersheds for Cell Segmentation in Fluorescence Microscopy Images
 - **BSc** in Computer Engineering, Ege University (summa cum laude, GPA: 3.91) 2006 – 2010
Senior Project: A Recommendation Tool Based on Neural Networks and Expert Systems
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Selected Projects

- **Brain connectivity analysis through deep learning** 2017 - present
Keywords: Deep learning, network analysis, graph convolutional networks, biomarker detection, spatial localization, parcellation
 - **Design and implementation of innovative tools for early diagnosis of dementia** 2017 - present
Keywords: Deep learning, convolutional neural networks, semantic segmentation, image classification, biomarker detection, discriminative localization, structural MRI
 - **Connectivity-driven parcellation methods for the human cerebral cortex** 2013 – 2017
Keywords: Non-linear manifold learning, unsupervised learning, clustering, network analysis, graph theory, resting-state fMRI, diffusion MRI
 - **Intelligent system design for cell/nucleus segmentation and classification** 2010 – 2013
Keywords: Attributed relational graphs, object segmentation, clustering, edge detection, color and shape analysis, microscopy imaging, high content screening
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Technical Skills

- **Programming languages:** Python (working knowledge), MATLAB (working knowledge), C/C++ (knowledgeable, not actively using), Java (knowledgeable, not actively using)
 - **Libraries and tools:** Scikit-learn, Lasagne, Theano, SciPy, NumPy, Pandas, Seaborn, NiBabel
 - **Operating systems:** Mac OS X (daily usage), Ubuntu (daily usage), Windows (not actively using)
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Awards/Honors/Scholarships/Fellowships

- **2017** Engineering and Physical Sciences Research Council (EPSRC) Doctoral Prize Fellowship
 - **2016** Medical Image Computing and Computer Assisted Interventions Conference (MICCAI) Travel Award
 - **2013** EPSRC Doctoral Training Studentship (duration: 3.5 years)
 - **2010** Scientific Research Council of Turkey (TUBITAK) Scholarship for Graduate Studies (duration: 3 years)
 - **2010** Bilkent University Tuition and Accommodation Scholarship (duration: 3 years)
 - **2010** Ege University, 1st Ranking Student of the Engineering Graduates (a total of ~500 students)
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Summary of Academic Achievements

- 1 post-doctoral fellowship
- 6 peer-reviewed articles in scientific journals
- 5 peer-reviewed full papers at leading international conferences
- 4 peer-reviewed publications at international conferences (short papers, abstracts, etc.)
- 2 talks at international conferences
- 5 awards/honors/scholarships

Selected Publications

In Peer-Reviewed Scientific Journals

- [1] **Arslan, S.**, Ktena, S.I., Makropoulos, A., Robinson, EC., Rueckert, D., Parisot, S., 2017. Human Brain Mapping: A Systematic Comparison of Parcellation Methods for the Human Cerebral Cortex. *NeuroImage*.
- [2] Parisot, S., Glocker, B., Ktena, S.I., **Arslan, S.**, Schirmer, M.D., Rueckert, D., 2017. A Flexible Graphical Model for Multimodal Parcellation of the Cortex. *NeuroImage*
- [3] Parisot, S., **Arslan, S.**, Passerat-Palmbach, J., Wells III, W.M., Rueckert, D., 2016. Parcellation of the Cortex through Multi-Scale Spectral Clustering. *NeuroImage*
- [4] **Arslan, S.**, Ozyurek, E., Gunduz-Demir, C., 2014. A Color and Shape Based Algorithm for the Segmentation of White Blood Cells in Peripheral Blood and Bone Marrow Images. *Cytometry Part A*
- [5] **Arslan, S.**, Ersahin, T., Cetin-Atalay, R., Gunduz-Demir, C., 2013. Attributed Relational Graphs for Cell Nucleus Segmentation in Fluorescence Microscopy Images. *IEEE Trans Med Imag*
- [6] Koyuncu, C.F., **Arslan, S.**, Durmaz, I., Cetin-Atalay, R., Gunduz-Demir, C., 2012. Smart Markers for Watershed-Based Cell Segmentation. *PLoS ONE*

In Peer-Reviewed International Conference Proceedings

- [7] Ktena, S.I., **Arslan, S.**, Parisot, S., Rueckert, D., 2017. Exploring Heritability of Functional Brain Networks with Inexact Graph Matching. *IEEE International Symposium on Biomedical Imaging (ISBI)*.
- [8] **Arslan, S.**, Parisot, S., Rueckert, D., 2016. Boundary Mapping through Manifold Learning for Connectivity-Based Cortical Parcellation. *International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*
- [9] **Arslan, S.** and Rueckert, D., 2015. Multi-Level Parcellation of the Cerebral Cortex Using Resting-State fMRI. *International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*
- [10] **Arslan, S.**, Parisot, S., Rueckert, D., 2015. Joint Spectral Decomposition for the Parcellation of the Cerebral Cortex Using Resting-State fMRI. *International Conference on Information Processing in Medical Imaging (IPMI)*
- [11] Parisot, S., **Arslan, S.**, Passerat-Palmbach, J., Wells III, W.M., Rueckert, D., 2015. Tractography-Driven Groupwise Multi-Scale Parcellation of the Cortex” *International Conference on Information Processing in Medical Imaging (IPMI)*

Full List: <https://goo.gl/SKvfQH>, Google Scholar: <https://goo.gl/7JURg1> (*h-index: 7, i10-index: 6*)

Invited Talks

- Connectivity-Driven Parcellation of the Cerebral Cortex, Tutorial on Analysis of Structural and Functional Neuroimaging Data at MICCAI’16 in Athens
 - Joint Spectral Decomposition of the Human Cerebral Cortex, Oral Presentation at IPMI’15 in Isle of Skye
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Teaching Experience (as TA)

Imperial College London

- Software Engineering and Algorithms (2014–17)
- Mathematical Methods (2014–16)
- Programming Laboratory II (2013–17)
- Programming Laboratory I (2013–15)

Bilkent University

- Fund. Structures of Computer Science I (2011–13)
 - Fund. Structures of Computer Science II (2011–12)
 - Digital Design (2010–11)
 - Algorithms and Programming II (2010–11)
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Professional Service

Regular reviewing activity for *NeuroImage*, *Brain Structure and Function*, *IEEE Transactions in Medical Imaging*, *PloS ONE*, *Cytometry Part A*, *Biomedical Signal Processing and Control*

Memberships and Professional Activity

- Imperial College London ACM Student Chapter 2014 – 2017
 - Medical Image Computing and Computer Assisted Intervention (MICCAI) Society 2015 – 2017
 - Organization for Human Brain Mapping (OHBM) 2015 – 2016
 - Institute of Electrical and Electronics Engineers (IEEE) 2011 – 2013
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References

Will be provided upon request
