

PERSONAL DETAILS

Name: Tamar (Tammy) Riklin Raviv

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EDUCATION

- 1990-1993 B.Sc. The Hebrew University of Jerusalem, Physics (Magna Cum Laude)
 1997-1999 M.Sc. The Hebrew University of Jerusalem, Computer Science (Magna Cum Laude)
 2002-2008 Ph.D. Tel Aviv University, The School of Electrical Engineering

CURRENT AND PREVIOUS POSITIONS (since PhD)

- 2012- Senior Lecturer (since 2014) Ben-Gurion University of the Negev
 Faculty of Engineering, Electrical and Computer Engineering Department
 2008-2012 Research Affiliate/Fellow Harvard Medical School
 2010-2012 Research Affiliate/Fellow The Broad Institute of MIT and Harvard
 2010-2012 Research Affiliate Massachusetts Institute of Technology (MIT) , CSAIL
 2008-2010 Post-Doctorate Associate Massachusetts Institute of Technology (MIT), CSAIL

ORGANIZATION OF SCIENTIFIC MEETINGS AND ADMINISTRATION

- 2017-2019 Associate TC Member IEEE Bio Imaging and Signal Processing
 2017 Special Sessions chair IEEE International Symposium on Biomedical Imaging (ISBI)
 Melbourne, Australia
 2017 Area Chair Medical Image Computing and Computed Assisted Intervention (MICCAI) conference
 Quebec city, Quebec, Canada
 2015-2018 Steering committee Israel Machine Vision Conference (IMVC)
 2016 Organizer The Third Interactive Medical Image Computing (IMIC) Workshop
 in conjunction with MICCAI 2016
 2015 Organizer The Second Interactive Medical Image Computing (IMIC) Workshop
 in conjunction with MICCAI 2015, Munich, Germany
 2014 Organizer The Interactive Medical Image Computing (IMIC) Workshop
 in conjunction with MICCAI 2014, Boston, MA, USA
 2013-2016 Steering committee Zlotowski Center for Neuroscience, Ben-Gurion University

COMMISSIONS OF TRUST

- Since 2008 Grant proposal reviewer: Israeli Science Foundation (ISF); United States - Israel Binational Science Foundation (BSF);
 Research Funds of the Ministry of Health
 Since 2003 Conference Program Committee Member and reviewer: CVPR, ICCV, ECCV, ACCV, ICIP, ICPR, MICCAI, ISBI, SS
 Since 2001 Journal Reviewer (partial list): IEEE TPAMI; IEEE TMI; IEEE T IMAGE PROCES, IEEE T SIGNAL PROCES;
 IEEE T SYST MAN CYB; MED IMAGE ANAL; CVIU; MACH VISION APPL; SIAM J SCI COMPUT

HONORS, AWARDS AND FELLOWSHIPS

- 2009 MICCAI young scientist award
- 2008 Yitzhak and Chaya Weinstein award for excellent paper
- 2007 Fulbright Post-Doctoral fellowship
- 2007 The Commercial and Industrial Club Illan Ramon Post-Doctoral scholar
- 2007 The Yitzhak and Chaya Weinstein Award for excellence in studies.
- 2005 The Yitzhak and Chaya Weinstein award for excellent paper
- 1993 Dean's list, The Hebrew University of Jerusalem

RESEARCH GRANTS

- 10/2016-9/2019 Principle Investigator, Israeli Science Foundation (ISF)
Co-Segmentation of Brain MRI Ensembles Via Multidimensional Latent Atlases,
yearly budget: 70,680\$ (1\$ = 3.82NIS)
- 3/2015-2/2017 Principle Investigator, KAMIN program, Chief Scientist at the Israeli Ministry of Economy
A User Interactive System for Medical Image Segmentation
with PI I. Shelef (MD), budget: 294,692\$ (1\$ = 3.82NIS)
- 8/2016-2/2018 Principle Investigator, Medical Corps, Israeli Defense Force
Mild Traumatic Brain Injuries (mTBI) Assessment using Diffusion Tensor Imaging (DTI) Asymmetry
with Co-PIs Ilan Shelef (MD) and Alon Friedman (MD, PhD), budget: 26,178\$ (1\$ = 3.82NIS)
- March 2017 Intel Electronics Ltd. equipment grant, 147,160 NIS
- 10/2017-9/2020 Principle Investigator, Ministry of Science and Technology
Joint Cell Tracking and Segmentation in High-throughput Time-lapse Microscopy Imaging
Total budget for 36 months: 740,025NIS.

EDUCATIONAL ACTIVITIES

Courses

2017-2018	<i>Introduction to Digital Image Processing</i> (mandatory, undergraduate level)	Ben-Gurion University Electrical and computer Engineering
2016-2018	<i>Deep learning and its applications</i> <i>to signal and image processing and analysis</i> (elective, graduate level)	Ben-Gurion University Electrical and computer Engineering
2015-2017	<i>Computational Methods</i> (mandatory, undergraduate level)	Ben-Gurion University Electrical and computer Engineering
2013 - 2018	<i>Magnetic Resonance Imaging</i> (elective, graduate level)	Ben-Gurion University Electrical and computer Engineering
2013 - 2016	<i>Introduction to Biomedical Imaging</i> (elective, undergraduate level)	Ben-Gurion University Electrical and computer Engineering
2003	Instructor <i>Principals of Operating systems</i>	Open University , Department of Computer Science

Research students

Shiri Gordon	2017 (expected)	Postdoc Ben-Gurion University
Assaf Arbelle	2019 (expected)	towards PhD. Ben-Gurion University
Ariel Benou	2016 (completed) Jointly with Alon Friedman	towards Master of Eng. Ben-Gurion University
Tsachi Hershkovitch	2016 (completed)	towards Master of Eng. Ben-Gurion University
Itai Benou	2017 (expected)	towards Master of Eng. Ben-Gurion University
Ohad Shitrit	2018 (expected)	towards Master of Eng. Ben-Gurion University
Topaz (Gal) Gilad	2018 (expected)	towards Master of Eng. Ben-Gurion University
Harel Gazit	2019 (expected)	towards Master of Eng. Ben-Gurion University
Or Shwartzman	2019 (expected)	towards Master of Eng. Ben-Gurion University
Boris Veselov	2018 (expected)	towards Master of Eng. Ben-Gurion University

SCIENTIFIC PUBLICATIONS

Journals:

1. A. Benou, R. Veksler, A. Freidman and **T. Riklin Raviv**, Ensemble of Expert Deep Neural Networks for Spatio-Temporal Denoising of Contrast-Enhanced MRI Sequences, *Medical Image Analysis*, Accepted, 2017.
2. T. Hershkovich, T. Shalmon, O. Shitrit, N. Halay, B. Menze, I. Dolgopyat, I. Kahn, I. Shelef and **T. Riklin Raviv**, A probabilistic model for 3D interactive segmentation, *Computer Vision and Image Understanding (CVIU), Special Issue on Probabilistic Models for Biomedical Image Analysis*, Vol. 151, pp. 47–60, 2016.
3. B. Menze, K. Van Leemput, D. Lashkari, **T. Riklin-Raviv**, E. Geremia, E. Albert, et al., A generative probabilistic model and discriminative extensions for brain lesion segmentation – with application to tumor and stroke, *IEEE Transactions on Medical Imaging (TMI)*, Vol 35(4), pp 933-946, 2016.
4. B. Menze, A. Jakaby, S. Bauery, J. Kalpathy-Cramery, K. Farahaniy, J. Kirby, et al., including **T. Riklin Raviv**, The Multimodal Brain Tumor Image Segmentation Benchmark (BRATS), *IEEE Transactions on Medical Imaging (TMI)*, 34 (10), pp. 1993 - 2024, Oct. 2015.
5. **T. Riklin Raviv**, Y. Gao, J. Levitt and S. Bouix. Statistical Shape Analysis of Neuroanatomical Structures via Level-set based Shape Morphing, *SIAM Journal of Imaging Sciences*, 7(3), pp. 1645–1668, 2014.
6. Y. Gao, **T. Riklin Raviv** and S. Bouix. Shape Analysis, A Field in Need of Careful Validation, *Human Brain Mapping*. Vol. 35 (10), pp. 4965-4978, 2014
7. E. Dittrich, **T. Riklin Raviv**, G. Kasprian, R. Donner, P. Brugger, D. Prayer and G. Langs. A spatio-temporal latent atlas for semi-supervised learning of fetal brain segmentations and morphological age estimation, *Medical Image Analysis*, 18(1), pp 9–21, January 2014.
8. C. Wählby, L. Kamensky, Z.H. Liu, **T. Riklin Raviv**, A.L. Conery, K.L. O'Rourke, E.J. Sokolnicki, O. Visvikis, V. Ljosa, J.E. Irazoqui, P. Golland, G. Ruvkun, F.M. Ausubel and A.E. Carpenter. An image analysis toolbox for high-throughput c. elegans assays. *Nature Methods*, Vol. 9 pp 627 – 763, July 2012.
9. **T. Riklin Raviv**, K. Van Leemput, B.H. Menze, W.M. Wells and P. Golland. Segmentation of image ensembles via latent atlases. *Medical Image Analysis*, 14(5):654–665, 2010.
10. **T. Riklin Raviv**, N. Sochen and N. Kiryati. On symmetry, perspectivity, and level-set-based segmentation. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 31(8):1458–1471, 2009.
11. **T. Riklin Raviv**, N. Sochen and N. Kiryati. Shape-based mutual segmentation. *International Journal of Computer Vision*, 79:231–245, 2008.
12. **T. Riklin Raviv**, N. Kiryat, and N. Sochen. Prior-based segmentation and shape registration in the presence of projective distortion. *International Journal of Computer Vision*, 72(3):309–328, May 2007.
13. A. Shashua and **T. Riklin Raviv** The quotient image: Class-based re-rendering and recognition with varying illuminations. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 23(2):129–139, 2001.

Peer Reviewed Conference Proceedings

14. B. Kodner, S.H. Gordon, J. Goldberger and **T. Riklin Raviv**, Atlas of Classifiers for Brain MRI Segmentation, *MICCAI workshop on Machine Learning in Medical Imaging (MLMI)*, Accepted, September 2017.
15. O. Shitrit and **T. Riklin Raviv**, Accelerated Magnetic Resonance Imaging by Adversarial Neural Network, *MICCAI workshop on Deep Learning in Medical Image Analysis (DLMIA)*, Accepted, September 2017.
16. I. Benou, A. Friedman and **T. Riklin Raviv**, Fiber-Flux Diffusion Density for White Matter Tracts Analysis: Application to Mild Anomalies Localization in Contact Sports Players, *MICCAI Workshop on Computational Diffusion MRI*, Accepted, September 2017.
17. **T. Riklin Raviv**, Multinomial Level-Set Framework for Multi-Region Image Segmentation, In *6th Conference on Scale Space and Variational Methods in Computer Vision (SSVM)*, accepted, June 2017
18. A. Benou, R. Veksler, A. Friedman and **T. Riklin Raviv**, De-noising of Contrast-Enhanced MRI Sequences by an Ensemble of Expert Deep Neural Networks, In *MICCAI workshop on Deep Learning in Medical Image Analysis (DLMIA)*, pages 95-110, Springer International publishing, October 2016.
19. S. Gordon, I. Dolgopyat, I. Kahn and **T. Riklin Raviv**, Co-segmentation of Multiple Images into Multiple Regions: Application to Mouse Brain MRI, In *IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, pages 399–402, April 2016.
20. A. Arbelle, N. Drayman, M. Bray, U. Alon, A. Carpenter, **T. Riklin Raviv** Analysis of High-throughput Microscopy Videos: Catching Up with Cell Dynamics, In *Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, pages 218–225, October 2015.
21. T. Gilad, M. A. Bray, A. E. Carpenter and **T. Riklin Raviv**, Symmetry based mitosis detection in time-lapse microscopy, In *IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, pages 164–167, April 2015.
22. O. Shitrit, T. Hershkovitch, T. Shalmon, I. Shelef and **T. Riklin Raviv**, Probabilistic Model for 3D Interactive Segmentation, In *MICCAI workshop on Interactive Medical Image Computing (IMIC)*, September 2014.
23. **T. Riklin Raviv**, Y. Gao, J. Levitt and S. Bouix. Statistical shape analysis for population studies via level-set based shape morphing, In *ECCV workshop on Non-Rigid Shape Analysis and Deformable Image Alignment (NORDIA)*, Lecture Notes in Computer Science, Volume 7583, pages 42–51, October 2012.
24. **T. Riklin Raviv**, K. Van Leemput and B. Menze. Multi-modal brain tumor segmentation via latent atlases, *MICCAI challenge on Multimodal Brain Tumor Segmentation*, 2012.
25. E. Ditttrich, **T. Riklin Raviv**, G. Kasprian, P. Brugger, D. Prayer and G. Langs. Learning a spatio-temporal latent atlas for fetal brain segmentation. In *MICCAI workshop: Image Analysis of Human Brain Development*, September 2011.
26. C. Wählby, **T. Riklin-Raviv**, V. Ljosa, A.L. Conery, P. Golland, F.M. Ausubel and A.E. Carpenter. Resolving clustered worms via probabilistic shape model. In *IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, April 2010. Oral presentation.
27. **T. Riklin-Raviv**, V. Ljosa, A.L. Conery, F.M. Ausubel, A.E. Carpenter, P. Golland, and C. Wählby. Morphology-guided graph search for untangling objects: *C. elegans* analysis. In *Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, pages 634–641, September 2010.

28. **T. Riklin Raviv**, K. Van Leemput, W.M. Wells and P. Golland. Joint segmentation of image ensembles via latent atlases. In *Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, pages 272–280, 2009.
29. **T. Riklin Raviv**, B.H. Menze, K. Van Leemput, B. Stieltjes, N. Weber, M.A. Ayache, W.M. Wells and P. Golland. Joint segmentation via patient-specific latent anatomy model. In *Proc. of MICCAI Workshop on Probabilistic Models for Medical Image Analysis*, 2009.
30. N. Ben-Zadok, **T. Riklin-Raviv**, and N. Kiryati. Interactive level set segmentation for image-guided therapy. In *IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, 2009.
31. N. Kiryati, **T. Riklin Raviv**, Y. Ivanchenko and S. Rochel. Real-time abnormal motion detection in surveillance video. In *Proceedings of the International Conference on Pattern Recognition (ICPR)* , pages 1–4, December 2008.
32. **T. Riklin-Raviv**, N. Sochen, N. Kiryati, N. Ben-Zadok, S. Gefen, L. Bertrand and J. Nissanov. Propagating distributions for segmentation of brain atlas. In *IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)* , pages 1304–1307, 2007.
33. **T. Riklin-Raviv**, N. Sochen and N. Kiryati. Mutual segmentation with level-sets. In *IEEE Computer Society CVPR Workshop on Perceptual Organisation in Computer Vision*, 2006.
34. **T. Riklin-Raviv**, N. Kiryati and N. Sochen. Segmentation by level sets and symmetry. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 1015–1022, 2006.
35. **T. Riklin-Raviv**, N. Kiryati and N. Sochen. Prior-based segmentation by projective registration and level-sets. In *Proceedings of the International Conference on Computer Vision (ICCV)*, pages 204–211, 2005.
36. **T. Riklin-Raviv**, N. Kiryati, and N. Sochen. Unlevel-sets: Geometry and prior-based segmentation. In *Proceedings of the European Conference on Computer Vision*, volume 4 (ECCV), pages 50–61, 2004.
37. **T. Riklin-Raviv** and A. Shashua. The quotient image: Class based recognition and synthesis under varying illumination conditions. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 566–571, 1999.

Short Papers and Abstracts:

38. J. Levitt, Y. Rathi , **T. Riklin Raviv**, P. G. Nestor, L. Levin, R. McCarley and M.E. Shenton Frontostriatal dysconnectivity in Schizophrenia, In *Schizophrenia bulletin* 41, pages 263, 2015.
39. J. Levitt, Y. Rathi , **T. Riklin Raviv**, R. McCarley and M.E. Shenton Connectivity-based Parcellation of the Striatum in Schizophrenia Using Diffusion Weighted Imaging (DWI), In *Neuropsychopharmacology* 39, 221-222, 2014
40. J. Levitt, Y. Rathi, **T. Riklin Raviv**, R.W. McCarley and M.E. Shenton, DTI Connectivity-Based Parcellation of the Striatum in Schizophrenia, In *Biological Psychiatry*, 75(9), P. 375, May 2014.
41. **T. Riklin Raviv**, Y. Gao, and S. Bouix, Statistical shape analysis with modified Hausdorff distance, in *IEEE Engineering in Medicine and Biology Society (EMBS)*, 2012.