

Suyash P. Awate

Professor

Computer Science and Engineering (CSE) Department,
Indian Institute of Technology (IIT) Bombay, Mumbai

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Research Areas

Image processing and analysis, [Medical image computing](#), Machine learning, Computer vision, Statistical modeling and inference

Positions Held

- 2021 – present *Indian Institute of Technology (IIT) Bombay, Department of Computer Science and Engineering*
Professor
- 2015 – 2021 *Indian Institute of Technology (IIT) Bombay, Department of Computer Science and Engineering*
Associate Professor
- 2013 – 2015 *Indian Institute of Technology (IIT) Bombay, Department of Computer Science and Engineering*
Assistant Professor
- 2013 – 2017 *University of Utah, School of Computing*
Adjunct Faculty
- 2010 – 2013 *University of Utah, School of Computing*
Research Assistant Professor
- University of Utah, Scientific Computing and Imaging (SCI) Institute*
Research Faculty
- 2009 – 2010 *Siemens Corporate Research, Medical Imaging Technologies*
Research Scientist
- 2006 – 2009 *University of Pennsylvania, Department of Radiology*
Postdoctoral Fellow at Penn Image Computing and Science Laboratory (PICSL)

Honors, Awards

- 2022 “Best Paper Award” at IEEE Int. Symp. Biomedical Imaging (ISBI) conference
- 2020 “Magna Cum Laude Award” at ISMRM international conference
- 2019 “Best Paper Award” finalist at IEEE Int. Symp. Biomedical Imaging (ISBI) conference
- 2019 First podium presentation at IPMI international conference
- 2018 “Young Scientist Award” runner-up at MICCAI international conference
- 2017 “Best Paper Award” finalist at IEEE Int. Conf. on Image Processing (ICIP)
- 2017 International Travel Support Grant, Department of Science and Technology, Govt. of India
- 2015 First podium presentation at IPMI international conference
- 2014 Microsoft Research India Young Faculty Award, Indian Institute of Technology Bombay
- 2013 “Best Paper Award” at MBIA workshop at MICCAI international conference
- 2012 “Best Paper Award” at MBIA workshop at MICCAI international conference
- 2009 “Young Scientist Award” runner-up at MICCAI international conference
- 2001 1st rank in college (about 120 students), 8th rank in university (about 2000 students),
Distinction in each semester; University of Mumbai
- 1997–2001 Dhirubhai Ambani Undergraduate Merit Scholarship
- 1997–8 IIT Joint Entrance Exam ranks in top 2150 and 1150 from 150,000+ examinees in India

1997 National Merit Scholarship Scheme Certificate from the Government of India
(Top 0.1% in All India Senior Secondary School Examination; Rank 4 in Maharashtra state)

Refereed Journal Publications

Elsevier MedIA, IEEE TMI are the top journals for medical image analysis
NeuroImage is among the top journals for image-analysis-oriented brain research
IEEE TIP, Pattern Recognition, IEEE TPAMI are among the top journals for image analysis

1. Kulkarni P, Merchant SN, [Awate SP](#)
[Mixed-dictionary models and variational inference in task fMRI for shorter scans and better image quality](#)
Medical Image Analysis (MedIA) 2022, 78:102392, Elsevier
2. Sudarshan VP, Upadhyay U, Egan G, Chen Z, [Awate SP](#)
[Towards lower-dose PET using physics-based uncertainty-aware multimodal learning with robustness to out-of-distribution data](#)
Medical Image Analysis (MedIA) 2021, 102187, Elsevier
3. Kulkarni P, Merchant SN, [Awate SP](#)
[Dictionary+wavelet model with nested-minorized VB-EM for SMS-CAIPI R-fMRI reconstruction](#)
IEEE Open J. Signal Processing (OJSP) 2021, 2644-1322
4. Wadhvani K, [Awate SP](#)
[Controllable image generation with semi-supervised deep learning and deformable-mean-template based geometry-appearance disentanglement](#)
Pattern Recognition 2021, 118:108001, Elsevier
5. Sudarshan VP, Li S, Jamadar S, Egan G, [Awate SP](#), Chen Z
[Incorporation of anatomical MRI knowledge for enhanced mapping of brain metabolism using functional PET](#)
NeuroImage 2021, 233:117928, Elsevier
6. Kulkarni P, Merchant SN, [Awate SP](#)
[R-fMRI reconstruction from k-t undersampled data using a subject-invariant dictionary model and VB-EM with nested minorization](#)
Medical Image Analysis (MedIA) 2020, 65:101752, Elsevier
7. Sudarshan VP, Egan G, Chen Z, [Awate SP](#)
[Joint PET-MRI image reconstruction using a patch-based joint-dictionary prior](#)
Medical Image Analysis (MedIA) 2020, 62:101669, Elsevier
8. Kumar N, [Awate SP](#)
[Semi-supervised robust mixture models in RKHS for abnormality detection in medical images](#)
IEEE Trans. Image Processing (TIP) 2020, 29: 4772-87
9. [Awate SP](#), Garg S, Jena R
[Estimating uncertainty in MRF-based image segmentation: A Perfect-MCMC approach](#)
Medical Image Analysis (MedIA) 2019, 55:181-196, Elsevier
10. Wu J, [Awate SP](#), Licht DJ, Clouchoux C, du Plessis AJ, Avants BB, Vossough A, Gee JC, Limperpolous C
[Assessment of MRI-based automated fetal cerebral cortical folding measures in prediction of gestational age in the third trimester](#)
American Journal of Neuroradiology (AJNR) 2015, 36(7):1379-74
11. [Awate SP](#), Whitaker RT
[Multiatlas segmentation as nonparametric regression](#)
IEEE Trans. Medical Imaging (TMI) 2014, 33(9):1803-1817

12. Liu W, [Awate SP](#), Anderson JS, Fletcher PT
[A functional networks estimation method of resting-state fMRI using a hierarchical Markov random field](#)
NeuroImage 2014, 100:520-534, Elsevier
13. Tustison N, [Awate SP](#), Song G, Cook T, Gee JC
[Point-set registration using Havrda-Charvat-Tsallis entropy measures](#)
IEEE Trans. Medical Imaging (TMI) 2011, 30(2):451-460
14. [Awate SP](#), Yushkevich P, Song Z, Licht DJ, Gee JC
[Cerebral cortical folding analysis with multivariate modeling and testing : studies on gender differences and neonatal development](#)
NeuroImage 2010, 53(2):450-459, Elsevier
15. Zhang H, [Awate SP](#), Das S, Woo J, Melhem E, Gee JC, Yushkevich P
A tract-specific framework for white matter morphometry combining macroscopic and microscopic tract features
Medical Image Analysis (MedIA) 2010, 14(5):666-673, Elsevier
16. Tustison N, [Awate SP](#), Altes T, Gee JC
Pulmonary kinematics from tagged hyperpolarized Helium-3 MRI
J. Magnetic Resonance Imaging (JMRI) 2010, 31(5):1236-1241, Wiley
17. Pluta J, Avants B, Glynn S, [Awate SP](#), Gee JC, Detre J
Appearance and incomplete label matching for diffeomorphic template based hippocampus segmentation
Hippocampus 2009; 19(6):565-571, Wiley
18. [Awate SP](#), Zhang H, Gee JC
[A fuzzy, nonparametric segmentation framework for DTI and MRI analysis: with applications to DTI-tract extraction](#)
IEEE Trans. Medical Imaging (TMI) 2007; 26(11):1525-1536
19. [Awate SP](#), Whitaker RT
[Feature-preserving MRI denoising: a nonparametric empirical-Bayesian approach](#)
IEEE Trans. Medical Imaging (TMI) 2007; 26(9):1242-1255
20. Adluru G, [Awate SP](#), Tasdizen T, Whitaker R, DiBella EVR
Temporally constrained reconstruction of dynamic cardiac perfusion MRI
Magnetic Resonance in Medicine (MRM) 2007; 57:1027-1036, Wiley
21. [Awate SP](#), Tasdizen T, Foster N, Whitaker RT
[Adaptive Markov modeling for mutual-information-based unsupervised MRI brain-tissue classification](#)
Medical Image Analysis (MedIA) 2006; 10(5):726-739, Elsevier
(in top 8 most-cited papers in MedIA between 2006-2009)
22. [Awate SP](#), Whitaker RT
[Unsupervised, information-theoretic, adaptive image filtering for image restoration](#)
IEEE Trans. Pattern Analysis and Machine Intelligence (TPAMI) 2006; 28(3):364-376

Refereed Full-Length Conference Publications

MICCAI, IPMI, ISBI are the premier international conferences for medical image analysis

23. Sharma V, Khurana A, Yenamandra S, [Awate SP](#)
Semi-supervised deep expectation-maximization for low-dose PET-CT
IEEE Int. Symposium on Biomedical Imaging (ISBI) 2022, xx-xx
(Best Paper Award; podium presentation)

24. Sharma R, [Awate SP](#)
Robust and uncertainty-aware VAE (RU-VAE) for one-class classification
IEEE Int. Symposium on Biomedical Imaging (ISBI) 2022, xx-xx
25. Sharma R, Mashkaria S, [Awate SP](#)
A semi-supervised generalized VAE framework for abnormality detection using one-class classification
Winter Conf. on Applications of Computer Vision (WACV) 2022: 1302-1310, IEEE Xplore
26. Gaikwad AV, [Awate SP](#)
Deep MCEM for weakly-supervised learning to jointly segment and recognize objects using very few expert segmentations
Information Processing in Medical Imaging (IPMI) 2021, 624-36, Springer LNCS 12729
27. Yenamandra S, Khurana A, Jena R, [Awate SP](#)
Learning image inpainting from incomplete images using self-supervision
IEEE Int. Conf. Pattern Recognition (ICPR) 2020, 10390-7
28. Taneja K, Kulkarni P, Merchant SN, [Awate SP](#)
A Bayesian deep CNN framework for reconstructing k-t-undersampled resting-fMRI
IEEE Int. Conf. Pattern Recognition (ICPR) 2020, 8492-9
29. Pande N, [Awate SP](#)
Generative deep-neural-network mixture modeling with semi-supervised MinMax+EM learning
IEEE Int. Conf. Pattern Recognition (ICPR) 2020, 5666-73
30. Shigwan S, Gaikwad AV, [Awate SP](#)
Object segmentation with deep neural nets coupled with a shape prior, when learning from a training set of limited quality and small size
IEEE Int. Symposium on Biomedical Imaging (ISBI) 2020, 1149-53
31. Kulkarni PH, Gupta K, Merchant SN, [Awate SP](#)
R-fMRI reconstruction from k-t undersampled simultaneous-multislice MRI with controlled aliasing: towards higher spatial resolution
IEEE Int. Symposium on Biomedical Imaging (ISBI) 2020, 1060-4
32. Upadhyay U, [Awate SP](#)
A mixed-supervision multilevel GAN framework for image quality enhancement
Medical Image Computing and Computer Assisted Intervention (MICCAI) 2019; (5) 556-64
Springer LNCS 11768
(MICCAI Undergraduate Student Travel Award)
33. Sudarshan VP, Gupta K, Egan G, Chen Z, [Awate SP](#)
Joint reconstruction of PET + parallel-MRI in a Bayesian coupled-dictionary MRF framework
Medical Image Computing and Computer Assisted Intervention (MICCAI) 2019; (3) 39-47
Springer LNCS 11766
(MICCAI Graduate Student Travel Award)
34. Jena R, [Awate SP](#)
A Bayesian neural net to segment images with uncertainty estimates and good calibration
Information Processing in Medical Imaging (IPMI) 2019, 3-15, Springer LNCS 11492
(first podium presentation of the conference; podium presentation, acceptance rate 11%)
35. Radhakrishnan T, [Awate SP](#)
A unified Bayesian approach to quantitative colocalization analysis with MRF-based Poissonian deconvolution and segmentation in dual-color fluorescence microscopy
IEEE Int. Symposium on Biomedical Imaging (ISBI) 2019, 543-7
36. Upadhyay U, [Awate SP](#)
Robust super-resolution GAN, with manifold-based and perception loss

IEEE Int. Symposium on Biomedical Imaging (ISBI) 2019, 1372-6
(Best Paper Award finalist: in top 10 of eligible papers, podium presentation)

37. Gupta K, [Awate SP](#)
 Bayesian reconstruction of undersampled multicoil HARDI
IEEE Int. Conf. Image Processing (ICIP) 2019, 1247-51
(podium presentation)
38. Gupta K, [Awate SP](#)
 Random forests for simultaneous-multislice (SMS) undersampled HARDI reconstruction and uncertainty estimation
IEEE Int. Conf. Image Processing (ICIP) 2019, 2626-30
39. Kumar N, Chandran S, Rajwade A, [Awate SP](#)
 Semi-supervised robust one-class classification for abnormality detection in medical images
IEEE Int. Conf. Image Processing (ICIP) 2019, 544-8
40. Shah M, Merchant SN, [Awate SP](#)
 MS-Net: Mixed-supervision fully-convolutional networks for full-resolution segmentation
Medical Image Computing and Computer Assisted Intervention (MICCAI) 2018; 21(4):379-87
(Young Scientist Award runner-up: in top 10 of eligible papers, podium presentation, acceptance rate 5%, student travel award)
41. Garg S, [Awate SP](#)
 Uncertainty estimation in segmentation with perfect MCMC sampling in Bayesian MRFs
Medical Image Computing and Computer Assisted Intervention (MICCAI) 2018; 21(1):673-81
 (acceptance rate 34%)
42. Sudarshan VP, Chen Z, [Awate SP](#)
 Joint PET+MRI patch-based dictionary for Bayesian random field PET reconstruction
Medical Image Computing and Computer Assisted Intervention (MICCAI) 2018; 21(1):338-46
 (acceptance rate 34%)
43. Shah M, Merchant SN, [Awate SP](#)
 Abnormality detection using deep neural networks with robust autoencoding and semi-supervision
IEEE Int. Symposium on Biomedical Imaging (ISBI) 2018, 568-72
(podium presentation, acceptance rate 17%)
44. Kulkarni PH, Merchant SN, [Awate SP](#)
 Bayesian reconstruction of R-fMRI from k-t undersampled data using a robust subject-invariant spatially-regularized dictionary prior
IEEE Int. Symposium on Biomedical Imaging (ISBI) 2018, 302-6
45. Radhakrishnan T, Reddy K, [Awate SP](#)
 Accurate colocalization estimation in multichannel fluorescence microscopy using a novel Bayesian graphical model and perfect Monte Carlo EM algorithm
IEEE Int. Symposium on Biomedical Imaging (ISBI) 2018, 1583-7
(podium presentation, acceptance rate 17%)
46. Das R, Golatkar A, [Awate SP](#)
 Sparse kernel PCA for outlier detection
IEEE Int. Conf. Mach. Learning and Applications (ICMLA) 2018, 152-7
(podium presentation, acceptance rate 15%)
47. Kumar N, Rajwade A, Chandran S, [Awate SP](#)
 Kernel generalized-Gaussian mixture model for robust abnormality detection
Medical Image Computing and Computer Assisted Intervention (MICCAI) 2017; 20(1):21-29
 Springer LNCS 10435
 (acceptance rate 32%, **student travel award**)

48. Awate SP, Leahy RM, Joshi AA
Kernel methods for Riemannian statistical analysis of robust descriptors of cerebral cortical geometry
Information Processing in Medical Imaging (IPMI) 2017, 28-40, Springer LNCS 10265
(podium presentation, acceptance rate 16%)
49. Gupta K, Awate SP
Novel Bayesian modeling for dictionary learning and undersampled reconstruction in multishell HARDI
Information Processing in Medical Imaging (IPMI) 2017, 453-465, Springer LNCS 10265
(acceptance rate 36%)
50. Baid A, Kotwal A, Bhalodia R, Merchant SN, Awate SP
Joint desmoking, specular removal, and denoising of laparoscopy images
IEEE Int. Symposium on Biomedical Imaging (ISBI) 2017, 732-736
(podium presentation, acceptance rate ~19%)
51. Shah M, Singha S, Awate SP
Leaf classification using marginalized shape context and shape+texture dual-path deep convolutional neural network
IEEE Int. Conf. Image Processing (ICIP) 2017, 860-4
(podium presentation)
52. Kumar N, Rajwade A, Chandran S, Awate SP
Kernel generalized Gaussian and robust statistical learning for abnormality detection in medical images
IEEE Int. Conf. Image Processing (ICIP) 2017, 4157-61
(in top-10 finalists for Best Paper / Best Student Paper Award from 3000+ submissions, student travel award)
53. Awate SP, Dhar M, Kulkarni N
Robust kernel principal nested spheres
IEEE Int. Conf. Pattern Recognition (ICPR) 2016, 402-407
54. Awate SP, Koushik NN
Robust dictionary learning on the Hilbert sphere in kernel feature space
Euro. Conf. on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML PKDD) 2016 (1):731-748, Springer LNAI 9851
(podium presentation, acceptance rate 28%)
55. Shigwan SJ, Awate SP
Hierarchical generative modeling and Monte-Carlo EM in Riemannian shape space for hypothesis testing
Medical Image Computing and Computer Assisted Intervention (MICCAI) 2016; 19(3):191-200
Springer LNCS 9902
(acceptance rate 30%)
56. Awate SP, Leahy RM, Joshi AA
Riemannian statistical analysis of cortical geometry with robustness to partial homology and misalignment
Medical Image Computing and Computer Assisted Intervention (MICCAI) 2016; 19(1):237-246
Springer LNCS 9902
(podium presentation, acceptance rate 5%)
57. Kotwal A, Bhalodia R, Awate SP
Joint desmoking and denoising of laparoscopy images
IEEE Int. Symposium on Biomedical Imaging (ISBI) 2016, 10:1050-1054
(podium presentation, acceptance rate 19%)
58. Gaikwad AV, Shigwan SJ, Awate SP
A statistical model for smooth shapes in Kendall shape space
Medical Image Computing and Computer Assisted Intervention (MICCAI) 2015; 18(3):628-635

Springer LNCS 9351

(acceptance rate 32.5%, student travel award)

59. Awate SP, Radhakrishnan T
Colocalization estimation using graphical modeling and variational Bayesian expectation maximization:
Towards a parameter-free approach
Information Processing in Medical Imaging (IPMI) 2015; 24:3-16, Springer LNCS 9123
(first podium presentation of the conference; podium presentation, acceptance rate 10%)
60. Awate SP, Yu Y-Y, Whitaker RT
Kernel principal geodesic analysis
Euro. Conf. on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML PKDD) 2014 (1):82-98, Springer LNAI 8724
(podium presentation, acceptance rate 23.8%)
61. Yu Y-Y, Fletcher PT, Awate SP
Hierarchical Bayesian modeling, estimation, and sampling for multigroup shape analysis
Medical Image Computing and Computer Assisted Intervention (MICCAI) 2014; 17(3):9-16
Springer LNCS 8675
(podium presentation, acceptance rate 4.2%)
62. Awate SP, DiBella EVR
Compressed sensing HARDI via rotation-invariant concise dictionaries, flexible k-space undersampling,
and multiscale spatial regularity
IEEE Int. Symposium on Biomedical Imaging (ISBI) 2013, 10:9-12
(podium presentation, acceptance rate 18%)
63. Veni G, Fu Z, Awate SP, Whitaker RT
Proper-ordered meshing of complex shapes and optimal graph cuts applied to atrial-wall segmentation
from DE-MRI
IEEE Int. Symposium on Biomedical Imaging (ISBI) 2013, 10:1284-1287
64. Veni G, Fu Z, Awate SP, Whitaker RT
Globally optimal, Bayesian segmentation of atrium wall using graph cuts on 3D meshes
Information Processing in Medical Imaging (IPMI) 2013; 23:656-67, Springer LNCS
(acceptance rate 32%)
65. Wang E, Awate SP, Fletcher PT
Adaptive sparsity in Gaussian graphical models
Int. Conf. on Machine Learning (ICML) 2013, pp.1-9, Omnipress
(acceptance rate 25%)
66. Liu W, Awate SP, Fletcher
Group study of resting-state fMRI by hierarchical Markov random field
Medical Image Computing and Computer Assisted Intervention (MICCAI) 2012; 15(3):189-196
Springer LNCS 7512
(acceptance rate 32%)
67. Awate SP, DiBella EVR
Spatiotemporal dictionary learning for undersampled dynamic-MRI reconstruction via joint frame-
based and dictionary-based sparsity
IEEE Int. Symposium on Biomedical Imaging (ISBI) 2012, 9:318-321
(podium presentation, acceptance rate 15%)
68. Wang B, Prastawa M, Awate SP, Irimia A, Chambers M, Vespa P, Horn J, Gerig G
Segmentation of serial MRI of TBI patients using personalized atlas construction and topological
change estimation
IEEE Int. Symposium on Biomedical Imaging (ISBI) 2012, 9:1152-1155

69. Zhu P, Awate SP, Gerber S, Whitaker RT
Fast shape-based nearest-neighbor search for brain MRIs using hierarchical feature matching
Medical Image Computing and Computer Assisted Intervention (MICCAI) 2011; 14(2):484-491
Springer LNCS 6892
(acceptance rate 30%)
70. Awate SP, Yushkevich P, Licht DJ, Gee JC
Gender differences in cerebral cortical folding: multivariate complexity-shape analysis with insights into handling brain-volume differences
Medical Image Computing and Computer Assisted Intervention (MICCAI) 2009; 12(1):200-207
Springer LNCS 5762
(acceptance rate 32%)
71. Zhang H, Awate SP, Das S, Woo J, Melhem E, Gee JC, Yushkevich P
A tract-specific framework for white matter morphometry combining macroscopic and microscopic tract features
Medical Image Computing and Computer Assisted Intervention (MICCAI) 2009; 12(1):141-149
Springer LNCS 5762
(Young Scientist Award runner-up; in top 8% of 186 eligible papers; in top 3 in category)
72. Zheng Y, Grossman M, Awate SP, Gee JC
Automatic correction of intensity nonuniformity from sparseness of gradient distribution in medical images
Medical Image Computing and Computer Assisted Intervention (MICCAI) 2009; 12(1):852-859
Springer LNCS 5762
(acceptance rate 32%)
73. Awate SP, Yushkevich P, Song Z, Licht D, Gee JC
Multivariate high-dimensional cortical folding analysis, combining complexity and shape, in neonates with congenital heart disease
Information Processing in Medical Imaging (IPMI) 2009; 21:552-563, Springer LNCS 5636
(acceptance rate 39%)
74. Tustison N, Awate SP, Song G, Cook T, Gee JC
A new information-theoretic measure to control the robustness-sensitivity trade-off for DMFFD point-set registration
Information Processing in Medical Imaging (IPMI) 2009; 21:215-226, Springer LNCS 5636
(acceptance rate 39%)
75. Awate SP, Win L, Yushkevich P, Schultz RT, Gee JC
3D cerebral cortical morphometry in autism: increased folding in children and adolescents in frontal, parietal, and temporal lobes
Medical Image Computing and Computer Assisted Intervention (MICCAI) 2008; 11(1):559-567
Springer LNCS 5241
(acceptance rate 35%)
76. Awate SP, Zhang H, Gee JC
Multivariate segmentation of brain tissues by fusion of MRI and DTI data
IEEE Int. Symposium on Biomedical Imaging (ISBI) 2008; 5:213-216
(podium presentation, acceptance rate 17%)
77. Tustison N, Awate SP, Cai J, Altes T, Miller G, Lange E, Mugler J, Gee JC
Point-set registration of tagged He-3 images using a structurally-based Jensen-Shannon divergence measure within a deterministic-annealing framework
IEEE Int. Symposium on Biomedical Imaging (ISBI) 2008; 5:772-775
(podium presentation, acceptance rate 17%)

78. Cook PA, Zhang H, Awate SP, Gee JC
Atlas-guided probabilistic diffusion-tensor fiber tractography
IEEE Int. Symposium on Biomedical Imaging (ISBI) 2008; 5:951-954
79. Song Z, Awate SP, Gee JC
Nonparametric Markov priors for tissue segmentation
IEEE Int. Symposium on Biomedical Imaging (ISBI) 2008; 5:73-76
80. Song Z, Awate SP, Licht DJ, Gee JC
Clinical neonatal brain-MRI segmentation using adaptive nonparametric data models and intensity-based Markov priors
Medical Image Computing and Computer Assisted Intervention (MICCAI) 2007; 10(1):883-890
Springer LNCS 4791
(acceptance rate 37%)
81. Awate SP, Zhang H, Gee JC
Fuzzy nonparametric DTI segmentation for robust cingulum-tract extraction
Medical Image Computing and Computer Assisted Intervention (MICCAI) 2007; 10(1):294-301
Springer LNCS 4791
(acceptance rate 37%)
82. Awate SP, Gee JC
A fuzzy, nonparametric segmentation framework for DTI and MRI analysis
Information Processing in Medical Imaging (IPMI) 2007; 20:296-307, Springer LNCS 4584
(acceptance rate 30%)
83. Awate SP, DiBella EVR, Tasdizen T, Whitaker RT
Model-based image reconstruction for dynamic cardiac perfusion MRI from sparse data
IEEE Conf. Engineering in Medicine and Biology Society 2006; (1):936-941
(podium presentation, acceptance rate 17%)
84. Awate SP, Tasdizen T, Whitaker RT
Unsupervised texture segmentation with nonparametric neighborhood statistics
Euro. Conf. on Computer Vision (ECCV) 2006; 9:494-507, Springer LNCS 3952
(acceptance rate 21%)
85. Tasdizen T, Awate SP, Whitaker RT, Foster N
MRI tissue classification with neighborhood statistics: a nonparametric, entropy-minimizing approach
Medical Image Computing and Computer Assisted Intervention (MICCAI) 2005; 8(2):517-525
Springer LNCS 3750
(podium presentation, acceptance rate 7%)
86. Awate SP, Whitaker RT
Nonparametric neighborhood statistics for MRI denoising
Information Processing in Medical Imaging (IPMI) 2005; 19:677-688, Springer LNCS 3565
(acceptance rate 26%)
87. Awate SP, Whitaker RT
Higher-order image statistics for unsupervised, information-theoretic, adaptive image filtering
IEEE Computer Vision and Pattern Recognition (CVPR) 2005; (2):44-51
(podium presentation, acceptance rate 6%)

Refereed Full-Length Workshop Publications (double-blind review)

88. Upadhyay U, Sudarshan VP, Awate SP
Uncertainty-aware GAN with adaptive loss for robust MRI enhancement
Int. Workshop Computer Vision for Automated Medical Diagnosis (CVAMD) at ICCV 2021, xx-xx
(podium presentation)

89. Gupta K, Adlakha D, Agarwal V, Awate SP
Regularized dictionary learning with robust sparsity fitting for compressed sensing multishell HARDI
Int. Workshop Computational Diffusion MRI (CDMRI) at Int. Conf. MICCAI 2016, 35-48
Springer Mathematics and Visualization
(podium presentation, acceptance rate ~25%)
90. Wang B, Prastawa M, Saha A, Awate SP, Irimia A, Chambers M, Vespa P, van Horn J, Pascucci V, Gerig G
Modeling 4D changes in pathological anatomy using domain adaptation: analysis of TBI imaging using a tumor database
Int. Workshop Multimodal Brain Image Analysis (MBIA) at Int. Conf. MICCAI 2013, 3:31-39
Springer LNCS 8159
(Best Paper Award from 24 papers published at MBIA, podium presentation)
91. Awate SP, Zhu P, Whitaker RT
How many templates does it take for a good segmentation?: Error analysis in multiatlas segmentation as a function of database size
Int. Workshop Multimodal Brain Image Analysis (MBIA) at Int. Conf. MICCAI 2012, 2:103-114
Springer LNCS 7509
(Best Paper Award from 19 papers published at MBIA, podium presentation)
(talk at National Alliance for Medical Image Computing's retreat (Algorithms Core), Park City)
92. Prastawa M, Awate SP, Gerig G
Building spatiotemporal anatomical models through joint segmentation, registration, and 4D-atlas estimation
IEEE Workshop Mathematical Methods in Biomedical Image Analysis (MMBIA), 2012, 49-56
(podium presentation, acceptance rate 22%)
93. Liu W, Awate SP, Anderson J, Yurgelun-Todd D, Fletcher PT
Monte Carlo expectation maximization with hidden Markov models to detect functional networks in resting-state fMRI
Int. Workshop Machine Learning in Medical Imaging (MLMI) at Int. Conf. MICCAI 2011, 2:59-66
Springer LNCS 7009

Refereed Papers and Abstracts, Presentations

1. Sudarshan VP, Li S, Fernandez A, Ward P, Jamadar S, Egan G, Awate SP, Chen Z
MRI-assisted high temporal resolution dynamic FDG-PET imaging for assessing brain functions
Int. Society of Magnetic Resonance in Medicine (ISMRM) 2020
(podium presentation, acceptance rate 15%, magna cum laude award)
2. Sudarshan VP, Fernandez A, Pawar K, Li S, Egan G, Awate SP, Chen Z
Synthesis of standard dose FDG PET images from low dose acquisition using a combination of atlas and CNN based method
Int. Society of Magnetic Resonance in Medicine (ISMRM) 2019
(podium presentation, acceptance rate 15%)
3. Wu J, Awate SP, Licht DJ, Avants B, Clouchoux C, Plessis A, Gee JC, Limperopoulos C
Cortical folding measurement is a potential indicator for prenatal brain maturity
Workshop on Image Analysis of Human Brain Development at Int. Conf. MICCAI 2011, 1:8
4. Wu J, Awate SP, Licht DJ, Limperopoulos C, Gee JC
Cortical folding analysis for normal fetuses
Int. Society of Magnetic Resonance in Medicine (ISMRM) 2010
(podium presentation, acceptance rate 15%)
5. Limperopoulos C, Wu J, Licht DJ, Gee JC, Awate SP, Clouchoux C, du Plessis AJ
Quantitative MRI measurements of cortical development in the fetus

Pediatric Academic Society
(podium presentation)

6. Cook T, Tustison N, Song G, Awate SP, Torigian D, Geftter W, Gee JC
 Segmentation-based quantitation of pulmonary alveolar proteinosis, pre- and post-lavage, using high-resolution computed tomography
Proc. Second Int. Workshop on Pulmonary Image Processing at Int. Conf. MICCAI 2009, 61-71
7. Awate SP, Zhang H, Gee JC
 Novel statistical models and methods for DTI fiber-bundle segmentation
Int. Society of Magnetic Resonance in Medicine (ISMRM) 2008
(podium presentation, acceptance rate 15%)
8. Awate SP, Whitaker RT
 An interactive, parallel, multiprocessor, level-set solver with dynamic load balancing
 School of Computing, University of Utah, Technical Report UUCS-05-002
SIAM Conf. Parallel Processing for Scientific Computing (PPSC) 2004
(podium presentation)

Software

- Contributed multi-threaded C++ code to widely-used open-source Insight Segmentation and Registration Toolkit (ITK)

Education

- | | |
|------|---|
| 2006 | Ph.D. in Computer Science
University of Utah
Dissertation: Adaptive nonparametric Markov models with information-theoretic methods for image restoration and segmentation |
| 2001 | B.E. in Computer Engineering (Distinction each semester, 1 st rank in college, 8 th rank in univ.)
University of Mumbai
Thesis: Image restoration using artificial neural networks |

Professional Service

- Activities, Organization
 - Editorial Board Member, Medical Image Analysis, Elsevier, 2020-present
 - Associate Editor (*guest*), Medical Physics, American Association of Physicists in Medicine, 2008-present
 - Associate Editor, Frontiers in Neuroscience: Brain Imaging Methods, 2020-present
 - IEEE Bio Imaging and Signal Processing Technical Committee (BISP TC) Member (elected), 2021-23
 - Program Chair, IEEE International Symposium on Biomedical Imaging (ISBI) 2022
 - Area Chair, Medical Image Computing and Computer-Assisted Intervention (MICCAI) Conference 2019
 - Area Chair, IEEE Int. Conf. Image Processing (ICIP), 2022
 - Area Chair, Medical Imaging with Deep Learning (MIDL) Conference 2019, 2021
 - Session Chair, Information Processing in Medical Imaging (IPMI) Conference 2019-2021
 - Chair for MedImage workshop at Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP) 2018
 - Organizer for Global Initiative of Academic Networks (GIAN) workshop on Medical Image Computing: Machine Learning Methods and Advanced-MRI Applications (with Prof. Y Rathi, Harvard University). 108 participants from across the nation. 2018
 - Co-Chair for MedImage workshop at Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP) 2016

- Area Chair, Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP) 2016-18
- Peer reviewing for journals
 - IEEE Transactions
 - Medical Imaging (TMI)
 - Image Processing (TIP)
 - Pattern Analysis and Machine Intelligence (TPAMI)
 - Signal Processing (TSP)
 - Computational Imaging (TCI)
 - Fuzzy Systems (TFS)
 - Visualization and Computer Graphics (TVCG)
 - IEEE
 - Signal Processing Letters
 - Access
 - Elsevier
 - Medical Image Analysis (MedIA)
 - Pattern Recognition (PR)
 - Computer Vision and Image Understanding (CVIU)
 - Image and Vision Computing (IVC)
 - NeuroImage (NIMG)
 - Signal Processing
 - Frontiers
 - Computer Science: Computer Vision and Image Analysis
 - Neuroscience: Brain Imaging Methods
 - Oncology: Cancer Imaging and Image-directed Interventions
 - Springer
 - International Journal of Computer Vision (IJCV)
 - Signal Image and Video Processing
 - Sadhana, Indian Academy of Sciences
 - National Academy Science Letters
 - Society for Industrial and Applied Mathematics (SIAM)
 - Multiscale Modeling and Simulation (MMS)
 - Imaging Sciences (SIIMS)
 - Wiley
 - Magnetic Resonance in Medicine (MRM)
 - Journal of Magnetic Resonance Imaging (JMRI)
 - SPIE
 - Journal of Electronic Imaging
 - Public Library of Science (PLOS)
 - ONE
 - Others
 - British Journal of Radiology
 - Cerebral Cortex, Oxford Journals
- Peer reviewing for conferences
 - Scientific Review Committee member for Information Processing in Medical Imaging (IPMI) 2011-2021
 - Medical Image Computing and Computer Assisted Intervention (MICCAI) 2007-2022
 - IEEE International Symposium on Biomedical Imaging (ISBI) 2009-2022
 - European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD) 2019
 - IEEE Int. Conf. Image Processing (ICIP) 2022
 - IEEE Int. Conf. Pattern Recognition (ICPR) 2010, 2020
 - Int. Conf. Acoustics, Speech and Signal Processing (ICASSP) 2021

- Program Committee member, CVPR workshop on Differential Geometry in Computer Vision and Machine Learning (DiffCVML) 2021
- Program Committee member, MICCAI workshop on Computational Diffusion MRI (CDMRI) 2020-2021
- Program Committee member, MICCAI workshop on Bayesian and Graphical Models for Biomedical Imaging (BAMBI) 2014-2016
- Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP)
- National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG)
- Asian Conference on Computer Vision (ACCV) 2009
- British Machine Vision Conference (BMVC) 2020
- Medical Imaging and Augmented Reality (MIAR) 2008
- Society for Optical Engineering (SPIE) Medical Imaging 2007