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Noah Lee, Ph.D.

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SUMMARY

Noah Lee is a strategic technology and business leader with 15+ years of experience developing and commercializing advanced technology across industry verticals. Expertise in designing, developing, and productizing full-stack technologies (ML/AI, scalable architectures, and IT service excellence management). Proven R&D leadership scaling innovative solutions to millions of users and thousands of customers.

He is one of the leading researchers in the world in software engineering and biomedical engineering. He is currently a Senior Principal Research Data Scientist in the Infrastructure Data Science team at Meta Platforms, Inc. His research interests are in the field of Machine Learning and Artificial Intelligence with a focus on Software Engineering and Biomedical Engineering. His work is strongly interdisciplinary and his current research projects span the spectrum of biomedical engineering, neuro engineering, machine learning, data mining, medical image analysis, computer aided diagnosis, health care technology and clinical healthcare applications. As a sign of his strongly interdisciplinary work, he has published at the top research venues such as TPAMI, KDD, AAAI, PLoS, MICAAI, ISBI, IOVS.

He served as a lead researcher and contributor for several funded NEI, NMH, and NIH grants of over $10+ million dollars. Part of his research built the foundation for funded grant applications in response to the American Recovery and Reinvestment Act of 2009. I have made significant contributions to the field of biomedical engineering retinal, cardiac, and cancer image analysis with applications to blindness, heart disease, and diagnostic cancer treatment. The impact of my research on retinal, cardiac, and cancer biomedical images has been shown to and continue to show advances in health care.

He has served in the Program Committee for CAIN 2022. He received his PhD from Columbia University. He has published over 35+ papers and served as an invited reviewer for over 60+ papers from 13+ different publishers. He has 5 patents and according to Google Scholar has been cited over 1,100+ times and a h-index of 17.

AWARDS AND FELLOWSHIPS

Nominated as a candidate for the IBM Ph.D. fellowship program for exceptional Ph.D. students **2008**

Graduate Research Fellowship recipient, Columbia University **2005 - 2011**

Graduated *summa cum laude* from Computer Science Department of University of Applied Sciences **2004**

Honors medal recipient for excellent student undergraduate thesis award **2004**

RESEARCH EXPERIENCE

T. J. IBM Watson Research Center - Hawthorne, NY **May 2008 – Aug 2008**
PhD Fellow

Heffner Biomedical Imaging Laboratory, New York, NY **May 2005 – May 2011**
Graduate Research Assistant

Siemens Corporate Research - Princeton, NJ **May 2004 – Aug 2007**
R&D Intern

WORK EXPERIENCE

Meta Platforms, Inc. – Menlo Park, USA **Jul 2019 – current**
Senior Principal Research Data Scientist (Promotion)
Principal Research Data Scientist

Samsung Electronics America - Mountain View, USA **Aug 2017– Jun 2019**
Director (Head of Business and Operations Analytics) (Promotion)
Senior Manager (Promotion)

Samsung Electronics - Korea **Apr 2015 – Jun 2017**
Senior Professiona (Promotion)l
Senior Engineer

1010 Data - New York, USA **Oct 2011 – Feb 2015**
Senior Software Engineer (Promotion)
Software Engineer (Promotion)
Quantitative Analyst

Columbia University Medical Center, New York, USA **Jul 2011 – Oct 2011**
Postdoctoral Research Scientist

Inhovation Technologies - Seoul, Korea **Apr 2002 - Aug 2002**
R&D Intern

WhyFire Media - Berlin, Germany **Oct 1999 – Jan 2004**

Co-Founder, CTO

PATENTS

- Code quality prediction under super extreme class imbalance or resource constraints; Inventors: **Noah Lee,** R. Abreu, N. Nagappan; Patent number: US17543577
- Method for providing action guide information and electronic device; Inventors: **Noah Lee**, D. G. Kim, K. Y. Ryu, C. K. Lee, D. Rim, M. H. Jang, P. Prabakaran, D. H. Roh, J. W. Chun**;** Patent number: US20180345081A1
- Mining temporal patterns in longitudinal event data using discrete event matrices and sparse coding; Inventors: S. Ebadollahi, J. Hu, M. S. Kohn, **Noah Lee**, R. K. Sorrentino, J. Sun, F. Wang； Patent number: US20120191640A1
- Vascular reformatting using curved planar reformation; Inventors: **Noah Lee**, Matthias Rasch, Patent number: US20060122539A1
- Method and System for Interactive Segmentation of Retinal Disorders; Inventors: **Noah Lee**, T. Smith, A. F. Laine; Invention report recommended for patent application by Columbia Technology Ventures, 2009.

PUBLICATIONS

I have published 35+ referred conference and journal publications. My papers have been cited 1,100+ times with an h-index of 17 at the following venues:

- Public Library of Science (PLoS)
- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
- Knowledge Discovery and Data Mining (KDD)
- Association for the Advancement of Artificial Intelligence (AAAI)
- IEEE Transactions on Medical Imaging (TMI)
- International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)
- IEEE International Symposium on Biomedical Imaging (ISBI)
- Society of Photographic Instrumentation Engineers Medical Imaging (SPIE)
- Association for Research in Vision and Ophthalmology (ARVO)
- IEEE Engineering in Medicine and Biology Society (EMBS)
- International Congress of the IUPESM
- IEEE EMBS Neural Engineering (NER)
- IEEE Signal Processing Society Conference on Signals, Systems and Computers (ASILOMAR)
- Journal of Investigative Ophthalmology and Visual Science (IOVS)
- Journal of IEEE Reviews in Biomedical Engineering (RBME)

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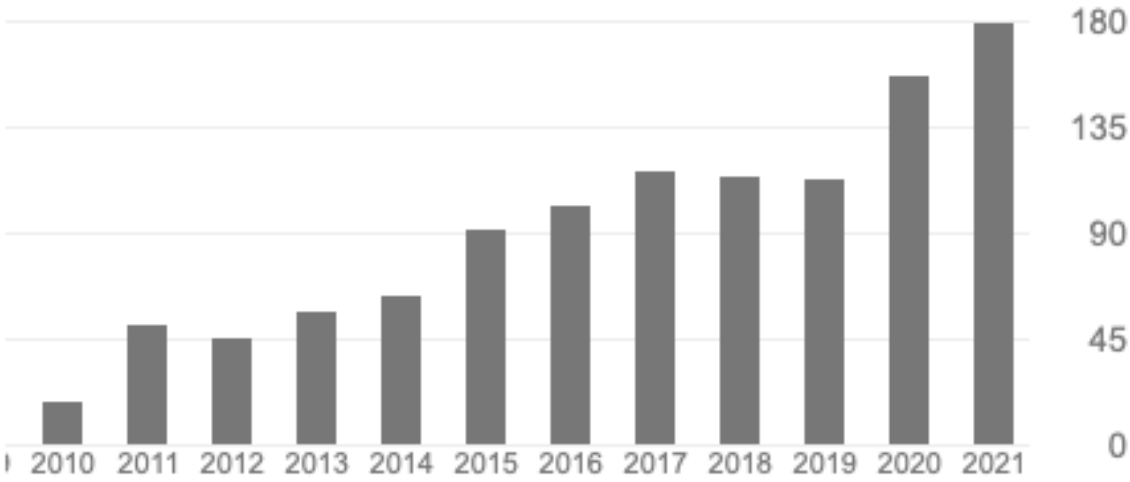

My Google Scholar link can be found here: https://scholar.google.com/citations?user=o1_ASDYAAAAJ&hl=en

1. A. Klein, S. Gosh, F. Bao, J. Giard, Y. Haeme, E. Stavsky, **Noah Lee**, B. Rossa, M. Reuter, E. Neto, A. Keshavan: Mindblogging morphometry of human brains. PLOS Computational Biology, Feb 2017.

2. B. Ong, **Noah Lee**, W. Lee, E. Pearce, S. Sivaprasad, C. Klaver, R. Smith, N. Chong: Optimisation of an automated drusen-quantifying software for the analysis of drusen distribution in patients with age-related macular degeneration. *Eye (London, England)*. 27: 554-60.

3. F. Wang, **Noah Lee**, J. Hu, J. Sun, S. Ebadollahi, A. Laine: A framework for mining signatures from event sequences and its applications in healthcare data, 2013 TPAMI.

4. F. Wang, **Noah Lee**, J. Hu, J. Sun, S. Ebadollahi: Towards heterogeneous temporal clinical event pattern discovery: a convolutional approach. 2012, KDD.

5. F. Wang, **Noah Lee**, J. Sun J. Hu, S. Ebadollahi: Automatic group sparse coding, 2011 AAAI.

6. **Noah Lee**, A. Laine, J. Hu, F. Wang, J. Sun, S. Ebadollahi: Mining electronic medical records to explore the linkage between healthcare resource utilization and disease severity in diabetic patients. 2011, HISB.

7. **Noah Lee**, A. Laine, A. Klein: Towards a deep learning approach to brain parcellation, 2011 ISBI.

8. A. Fawzi, **Noah Lee**, J. Acton, A. Laine, R. Smith: Recovery of macular pigment spectrum in vivo using hyperspectral image analysis, J Biomed Opt 2011 Oct;16(10):106008.

9. J. Chen, J. Tian, **Noah Lee**, J. Zheng, R. Smith, A. Laine: A partial intensity invariant feature descriptor for multimodal retinal image registration, IEEE Trans Biomed Eng 2010 Jul 18;57(7):1707-18. Epub 2010 Feb 18.

10. R. Smith, M. Sohrab, N. Pumariega, Y. Chen, J. Chen, **Noah Lee**, A. Laine: Dynamic soft drusen remodeling in age-related macular degeneration, Br J Ophthalmol 2010 Dec 7;94(12):1618-23.

11. **Noah Lee**, A. F. Laine, G. Marquez, J. Levsky, J. Gohagan, Potential of computer aided diagnosis to improve CT lung cancer screening, Reviews of Biomedical Engineering, to appear, 2009.

12. **Noah Lee**, J. Caban, S. Ebadollahi, A. F. Laine, Interactive Segmentation in Multi-Modal Medical Imagery using a Bayesian Transductive Learning Approach, Proceeding of SPIE Medical Imaging, Florida, U.S.A, vol. 7260, 72601W, 2009.

13. R.T. Smith, N.L. Gomes, G. Barile, M. Busuioc, **Noah Lee**, A.F. Laine, Lipofuscin & Autofluorescence Metrics in progressive STGD, Invest. Ophthalmol. Vis. Sci., doi:10.1167/iovs. 08-2448, 2009.

14. **Noah Lee**, A.F. Laine, S. Ebadollahi, R.L. DeLaPaz, Bayesian Transduction and Markov Conditional Mixtures for Spatiotemporal Interactive Segmentation, Proceedings of 4th International IEEE EMBS Conference on Neural Engineering, 2009.

15. **Noah Lee**, A.F. Laine, R.T. Smith, Bayesian Transductive Markov Random Fields for Interactive Segmentation in Retinal Disorders, Proceedings of 11th International Congress of Medical Physics and Biomedical Engineering, 2009.

16. J. Caban, **Noah Lee**, S. Ebadollahi, A. F. Laine, Concept detection in longitudinal brain MR images using multi-modal cues, Proceeding of 6th IEEE International Symposium on Biomedical Imaging (ISBI): From Nano to Macro, 2009.

17. N.M. Pumariega, M.A. Sohrab, J.Chen, **Noah Lee**, A. Laine, R. T. Smith1, Multimodal Image Registration Using the Fully Automated Harris-Invariant Feature Descriptor Scientific Poster, Association for Research in Vision and Ophthalmology, Fort Lauderdale, 5/2009.

18. M. Busuioc, R.T. Smith, R.P. Post, J. Chen, **N. Lee**, J. Shi, A. Laine. User Interactive Retinal Image Analysis: Realizing the Practical Digital Promise Scientific Poster, Association for Research in Vision and Ophthalmology, Fort Lauderdale, 5/2009.

19. Smith RT, Sajda P, Fawzi AA, Kashani A, **Lee Noah**, Bearman G, Wilson D,JohnsonB, Martin G, Humayun M, Drusen Spectral Signatures via Unsupervised Spectral Unmixing of Snapshot Hyperspectral Images, Scientific Paper, International symposium for Imaging in the Eye, Fort Lauderdale, April 2009.

20. R. T. Smith, N. Gomes, M. Busuioc, **Noah Lee**, A. Laine, Autofluorescence image analysis in age-related macular degeneration (AMD) and stargardt disease (STGD) , IEEE Signal Processing Society, Asilomar Conference on Signals, Systems and Computers, pp. 651-654, 2008.

21. **Noah Lee**, R. T. Smith, A. F. Laine, Interactive Segmentation for Geographic Atrophy in Retinal Fundus. Images, Proceedings of Asilomar Conference on Signals, Systems and Computers, IEEE Signal Processing Society, pp. 655-658, 2008

22. **Noah Lee**, A. F. Laine, T. R. Smith, Coarse to Fine Segmentation of stargardt rings using an expert guided dual ellipse model, Proceeding of 30th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS), pp. 2250-2253, Vancouver, Canada, 2008.

23. R.T.Smith, M. Busuioc, **Noah Lee**, A. F. Laine, Autofluorescence metrics in stargardt disease, Association for Research in Vision and Ophthalmology (ARVO), 2008.

24. M. Busuioc, R.T. Smith, **Noah Lee**, Ontologies used in a Clinical database for controlled field entries, Association for Research in Vision and Ophthalmology (ARVO), 2008.

25. R. T. Smith, G. Barile, N. Gomes, M. Busuioc, **Noah Lee**, A. Laine. Lipofuscin and Autofluorescence Metrics in Progressive Stargardt Disease. World Ophthalmology Conference, Hong Kong, Scientific Poster, July 2008.

26. **Noah Lee**, A. F. Laine, R. T. Smith, Learning Non-Homogenous. Textures and the unlearning problem with application to drusen detection in retinal images, Proceeding of 5th IEEE International Symposium on Biomedical Imaging (ISBI): From Nano to Macro, pp. 1215-1218, 2008.

27. **Noah Lee**, H. Tek, A. F. Laine, True-False Lumen Segmentation of Aortic Dissection using Multi-Scale Wavelet Analysis and Generative-Discriminative Model Matching, Proceedings of the SPIE, Medical Imaging, vol. 6915, pp. 69152V-69152V-11, 2008.

28. R.T. Smith, G. Barile, N. Gomes, M. Busuioc, R. Allikmets, **Noah Lee**, A. F. Laine, Lipofuscin and Autofluorescence Metrics in Progressive Stargardt Disease, Proceedings of the Association for Research in Vision and Ophthalmology (ARVO), 2008.

29. **Noah Lee**, A. Laine, R. Theodore Smith, A hybrid segmentation approach for geographic atrophy in fundus. auto-fluorescence images for diagnosis of age-related macular degeneration, Proceedings of 29th Annual International Conference of the IEEE, Engineering in Medicine and Biology Society (EMBS), 2007.

30. **Noah Lee**, A. F. Laine, R. T. Smith, M. Busuioc, Retinal vessel segmentation using multi-scale wavelet frame analysis, The Association for Research in Vision and Ophthalmology (ARVO) , 2007.

31. M. Busuioc, R.T. Smith, **Noah Lee**, R. Allikmets, Database for correlation of demographic, clinical photo documentation and genetic data, Association for Research in Vision and Ophthalmology (ARVO), 2007.

32. R.T. Smith, M. Busuioc, **Noah Lee**, A.F. Laine, S. Schmitz-Valckenberg, F.G. Holz, Autofluorescence and Geographic Atrophy, Association for Research in Vision and Ophthalmology (ARVO), 2007.

33. M. Busuioc, J. Koniarek, J. Chan, **Noah Lee**, S. Du, R.T. Smith, Image Registration and Supervised Automatic Drusen Segmentation for use in Clinical Studies, Association for Research in Vision and Ophthalmology (ARVO), 2006.

34. **Noah Lee**, M. Rasch, Tangential curved planar reformation for topological and orientation invariant visualization of vascular trees, Proceedings of the 28th Annual International Conference IEEE Engineering in Medicine and Biology Society (EMBS), pp. 1073-1076, New York City, U.S.A., 2006.

35. **Noah Lee**, A. F. Laine, R. T. Smith, I. Barbazetto, M. Busuioc, Level set segmentation of geographic atrophy in macular autofluorescence images, The Association for Research in Vision and Ophthalmology (ARVO), 2006.

36. **Noah Lee**, M. Rasch, Projective reformation for topological and rotation invariant visualization of vascular trees, World Congress on Medical Physics and Biomedical Engineering, 2006.

37. M. Busuioc, J. Koniarek, J. Chan, **Noah Lee,** S. Du, R.T. Smith. Ophthalmology & Biomedical Engineering, Columbia University. Image Registration and Supervised Automatic Drusen Segmentation for Use in Clinical Studies. Scientific Poster, Association for Research in Vision and Ophthalmology, Fort Lauderdale, 5/2006.

38. **Noah Lee**, A color code for object identification and a method for encoding and decoding, Diploma Thesis.

INVITED REVIEWS

I am a reviewer for 13+ different publishers including peer-reviewed journals, international conferences, and magazines and provided expert review in evaluating research work from peers for over 60+ research articles.

- 2010
  - IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)
  - IEEE Transactions on Medical Imaging (TMI)
- 2009
  - IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)
  - IEEE Engineering in Medicine and Biology Society (EMBC)
  - International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)
  - Journal of Visual Communication and Image Representation (JVCI)
  - International IEEE EMBS Conference on Neural Engineering (NER)

- 2008
  - International Conference on Bio-Inspired Systems and Signal Processing (BIOSIGNALS)
  - IEEE Engineering in Medicine and Biology Society (EMBC)
  - International Journal of Computer Assisted Radiology and Surgery (IJCARS)
  - International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)
  - IEEE Transactions on Image Processing (TIP)
  - IEEE Transactions on Medical Imaging (TMI)
- 2007
  - IEEE International Conference on Computer Vision (ICCV)
  - IEEE Engineering in Medicine and Biology Society (EMBC)
  - IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)
  - IEEE Transactions on Medical Imaging (TMI)

2009 (JVCI , EMBS, EMBS Magazine, ISBI, MICCAI, NER, TBME)

1. (Greece, Germany, France) N. Komodakis, A. Besbes, B. Glocker, **N. Paragios**, "Biomedical image analysis using Markov random fields & efficient linear programming", *The 31st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS)*, Minneapolis, U.S.A, Apr. 2009.

2. (U.S.A) K Belkacem-BoU.S.said, O. Sertel, G. Lozanski, A. Shana'aah, M. Gurcan, "Extraction of color feature in the spectral domain to recognize centroblasts in histopathology", *The 31st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS)*, Minneapolis, U.S.A, Apr. 2009.

3. (Sweden) P.T. Thorbergsson, H. Jorntell, F. Bengtsson, M. Garwicz, J. Schouenborg, A.J. Johansson, "Spike library based simulator for extracellular single unit neuronal signals", *The 31st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS)*, Minneapolis, U.S.A, Apr. 2009.

4. (Mexico) A. M. Diosdado, G. G. Coyt, B.M. P. Uribe, J. A. Gonzalez, "Analysis of RR intervals time series of congestive heart failure patients with Higuchi's fractal dimension", *The 31st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS)*, Minneapolis, U.S.A, Apr. 2009.

5. (Canada) M. R. Smith, R. A. Brown, M. L. Lauzon, M. Helmi, R. M. Rangayyan, "Empirical investigation of a fast 2D S-transform algorithm for the analysis of benign breast masses and malignant tumors", *The 31st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS)*, Minneapolis, U.S.A, Apr. 2009.

6. (South Korea) J. Park G. Lee, "Automatic localization of the optic disc in the retinal images", *The Journal of Visual Communication and Image Representation(JVCI)*, Jun. 2009.

7. (Italy) A. Silletti, E. Peserico, A. Mantovan, E. Zattra, A. Peserico, A. B. Fortina, "Variability in human and automatic segmentation of melanocytic lesions", *The 31st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS)*, Student Paper Competition, Minneapolis, U.S.A, Apr. 2009.

8. (Canada) F. Oloumi, R. M. Rangayyan, "Detection of the temporal arcade in fundus images of the retina using the Hough transform", *The 31st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS),* Student Paper Competition, Minneapolis, U.S.A, Apr. 2009.

9. (U.S.A) W. Wang, X. Huang, Y. Zhu, D. Lopresti, "A classifier ensemble based on performance level estimation", *IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, Rotterdam, Netherlands, Apr. 2009.

10. (Israel) A. Alush, H. Greenspan, J. Goldberger, "Automated and interactive lesion detection and segmentation using an arc-level MRF", *IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI),* Rotterdam, Netherlands, Apr. 2009.

11. (Switzerland) P. Fuernstahl, A. Schweizer, L. Nagy, G. Szekely, M. Harders, "A morphological approach to the simulation of forearm motion", *IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, Rotterdam, Netherlands, Apr. 2009.
12. (Netherlands) V.F. van Ravesteijn, L. Zhao, C.P. Botha, F.H. Post, F.M. Vos, L.J. van Vliet, "Combining mesh, volume, and streamline representations for polyp detection in CT colonography", *IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, Rotterdam, Netherlands, Apr. 2009.

13. (South Africa) R. Khutlang, S. Krishnan, A. Whitelaw, T. S. Douglas, "Detection of tuberculosis in sputum smear images using two one-class classifiers", *IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI),* Rotterdam, Netherlands, Apr. 2009.

14. (U.S.A) E. I. Zacharaki, S. Wang, S. Chawla, D. S. Yoo, R. Wolf, E.R. Melhem, C. Davatzikos", MRI-based classification of brain tumor type and grade using SVM-RFE", *IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI),* Rotterdam, Netherlands, Apr. 2009.

15. (U.S.A) O. Sertel, U. Catalyurek, H. Shimada, M. Gurcan, "Computer-aided prognosis of neuroblastoma: detection of mitosis-karyorrhexis cells", *IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, Rotterdam, Netherlands, Apr. 2009.

16. (AU.S.tria) P. Elbischger, S. Geerts, K. Sander, T. Schaeps, G. Ziervogel-Lukas, P. Sinah, "Algorithmic framework for HEp-2 fluorescence pattern classification to aid auto-immune diseases diagnosis", *IEEE*

International Symposium on Biomedical Imaging: From Nano to Macro (ISBI), Rotterdam, Netherlands, Apr. 2009.

17. (U.S.A, Germany) P. Rajan, M. Canto, E. Gorospe, A. Almario, C. Muenzenmayer, A. Kage, T. Wittenberg, G. Hager, "Automated diagnosis of barrett's esophagus. with endoscopic images", *IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, Rotterdam, Netherlands, Apr. 2009.

18. (Germany, U.S.A) A. Wismueller, A. Meyer-Baese, G.L. Leinsinger, O. Langer, T. Schlossbauer, M.F. Reiser, "Computer-aided diagnosis in dynamic breast MRI: neural network vector quantization improves diagnostic quality", *IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, Rotterdam, Netherlands, Apr. 2009.

19. (Canada) P. Labrecque, P. Bortoluzzi, A. P. Sangole, "Deformable shape metamorphosis technique to examine cranial growth in craniosynostosis", *IEEE EMBS Magazine - Special Issue on Industrial Applications for Healthcare Solutions*, Sept. 2010.

20. (Brazil) F.N. Bezerra, I.C. de Paula, F.N.S. Medeiros, D.M. Ushizima, L.H.S. Cintra, "Morphological segmentation for human shape clinical analysis of posture changes", *IEEE EMBS Magazine - Special Issue on Industrial Applications for Healthcare Solutions*, Sept. 2010.

21. (USA) Y. Zhu, S. Prummer, P. Wang, T. Chen, M. Ostermeier, D. Comaniciu, "Dynamic layer separation for coronary dsa and enhancement in fluoroscopic sequences", *The International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, London, United Kingdom, Sept. 2009.

22. (Unknown) Anonymous. review, "Non-rigid registration for brain MRI: faster and cheaper", *The International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, London, United Kingdom, Sept. 2009.

23. (Iran) S. Daneshvar, H. Ghassemian, "A study of visual agnosia disease by integrating multi-modal medical images", *The 4th International IEEE EMBS Conference on Neural Engineering (NER)*, Antalya, Turkey, May 2009.

24. (U.S.A) I. Kakadiaris, K. Josic, A. Tolias, P. Saggau, "Advanced imaging tools to analyze neuronal structure and function", *The 4th International IEEE EMBS Conference on Neural Engineering (NER)*, Antalya, Turkey, May 2009.

25. (U.S.A) Names not specified, "Independent components of oculomotor learning", *The 4th International IEEE EMBS Conference on Neural Engineering (NER)*, Antalya, Turkey, May 2009.

26. (France) A. Chaudhry, E. Parra-Denis, J.C. Klein, "Automatic detection of geographic atrophies and depigmentation zones in fundus. autofluorescence (FAF) images", *IEEE Transactions on Medical Imaging (TMI)*, Oct. 2009.

27. (Greece) N. Christophoros, M. Plissiti, A. Charchanti,"Automated detection of cell nuclei in pap smear images", IEEE Transactions of Biomedical Engineering (TBME), Nov. 2009.

2008 (BIOSIGNALS, ISBI, EMBS, IJCARS, MICCAI, TIP, TMI)

1. (Unknown) Anonymous. review, "Parafac classification of lamb carcass soft tissues in computer tomography (CT) image stacks", *International Conference on Bio-Inspired Systems and Signal Processing (BIOSIGNALS)*, Portugal, Jan. 2008.

2. (Unknown) Anonymous. review, "Crest lines and correlation filter based location of the macula in digital retinal images", *International Conference on Bio-Inspired Systems and Signal Processing (BIOSIGNALS)*, Portugal, Jan. 2008.

3. (U.S.A) S. Kim, L. Holmstrom, J. McNames, "Multiharmonic tracking using marginalized particle filters", *The 30th IEEE EMBS annual International Conference*, Van Couver, Canada, Apr. 2008.

4. (South Korea)V.R. Singh, "Wireless sensor networks for biomedical applications in cancer hyperthermia", *The 30th IEEE EMBS annual International Conference*, Van Couver, Canada, Apr. 2008.

5. (United Kingdom) R. Summers, H. Vyas, N. Dudhal, N. F. Doherty, C. R. Coombs, M. Hepworth, "Innovations in clinical trials informatics", *The 30th IEEE EMBS annual International Conference*, Van Couver, Canada, Apr. 2008.

6. (China, Canada) J. Zhang, Y. Wang, E. Lou, L. H. Le, "Graph cut under elliptical shape constraint for segmentation of cervical lymph nodes on ultrasonograms", *The 30th IEEE EMBS annual International Conference*, Van Couver, Canada, Apr. 2008.

7. (Singapore) H.P. Ng, S. Huang, S.H. Ong, K.W.C. Foong, P.S. Goh, W.L. Nowinski, "Medical image segmentation using watershed segmentation with texture-based region merging", *The 30th IEEE EMBS annual International Conference*, Van Couver, Canada, Apr. 2008.

8. (Iran) N. Sahba, A. Ahmaian, V. Tavakoli, N. Riahi-Alam, F. Y. Rizi, M. Giti, "A multi-stage hybrid method for mammography mass detection based on ranklet", *The 30th IEEE EMBS annual International Conference*, Van Couver, Canada, Apr. 2008.

9. (China) G.Q. Zhu, T.L. Huang, "Modified fuzzy c-means algorithm for MR images segmentation", *The 30th IEEE EMBS annual International Conference*, Van Couver, Canada, Apr. 2008.

10. (U.S.A) B. Giritharan, X. Yuan, J. Liu, B. Buckles, "Bleeding detection from capsule endoscopy videos", *The 30th IEEE EMBS annual International Conference*, Van Couver, Canada, Apr. 2008.

11. (Hungary) G. Bekes, I. Papp, A. Tanacs, M. Fidrich, "Semi-automatic 3D segmentation toolkit and its application to pelvic organs", *International Journal of Computer Assisted Radiology and Surgery (IJCARS)*, Sept. 2008.

12. (Unknown) Anonymous. review, "Evaluation of similarity measures for cardiac atlas-based registration", *The 11th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, New York, U.S.A., Sept. 2008.

13. (Unknown) Anonymous. review, "Robust segmentation of pulmonary nodules of various. densities: from ground-glass opacities to solid nodules", *The 11th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, New York, U.S.A., Sept. 2008.

14. (Unknown) Anonymous. review, "A hierarchical method for RNAi image segmentation using graph cut model", *The 11th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, New York, U.S.A., Sept. 2008.

15. (Unknown) Anonymous. review, "Model driven quantification of left ventricular function from single-beat 3D echocardiography", *The 11th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, New York, U.S.A., Sept. 2008.

16. (USA), Y. Shi, R. Lai, K. Kern, N. Sicotte, I. Dinov, **A. W. Toga**, "Harmonic surface mapping with laplace-beltrami eigenmaps", *The 11th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, New York, U.S.A., Sept. 2008.
17. (Unknown) Anonymous. review, "Cortical surface extraction in infants by coupled surfaces deformation across feature field", *The 11th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, New York, U.S.A., Sept. 2008.

18. (Unknown) Anonymous. review, "Fully automated localization of the spinal canal and intervertebral disc planes in 3D CT-scans", *The 11th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, New York, U.S.A., Sept. 2008.

19. (Unknown) Anonymous. review, "Human brain myelination from birth to 4.5 years", *The 11th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, New York, U.S.A., Sept. 2008.

20. (Unknown) Anonymous. review, "Interactive separation of segmented bones in CT volumes using graph cut", *The 11th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, New York, U.S.A., Sept. 2008.

21. (Unknown) Anonymous. review, "Vesselness and appearance constrained level set for cerebral arteries extraction in CT angiography", *The 11th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, New York, U.S.A., Sept. 2008.

22. (United Kingdom) Anonymous. review, "An interactive segmentation and regularization framework for vessel extraction in CT images", *The 11th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI),* New York, U.S.A., Sept. 2008.

23. (U.S.A) J. Tzeng, T. Nguyen, "Image enhancement for fluid lens camera based on color correlation", *IEEE Transactions on Image Processing (TIP)*, May 2008.

24. (Hong Kong) D. Zhang, B. Huang, N. Li, "Pixel based tongue color analysis", *IEEE Transactions on Medical Imaging (TMI)*, Feb. 2008.

25. (Iran) S. Gazor, H. Rabbani, R. Nezafat, "Wavelet-domain 3D medical image denoising using bivariate laplacian mixture model", *IEEE Transaction on Biomedical Engineering (TBME)*, Jun. 2008.

26. (U.S.A, New Zealand) A. El-Baz, M. F. Casanova, G. Gimel'farb, M. Mott, A.E.Switala, "Dyslexia diagnostics by 3d texture analysis of cerebral white matter gyrifications", *IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI),* Jan. 2008.

27. (U.S.A) B. Liu, E. Abdelsalam, J. Sheng, L. Ying, "Improved spiral sense reconstruction using a multiscale wavelet model", *IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, Jan. 2008.

28. (U.S.A) D. E. Freund, P. Burlina, A. Banerjee, "Characterization of spatial ordering of corneal stroma fibrils", *IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, Jan. 2008.

2007 (PR, EMBS, ISBI, TMI, ICCV)

1. (U.S.A) B. Balas, "Attentive texture similarity as a categorization task: comparing texture synthesis models", *The Journal of the Pattern Recognition Society*, 2007.

2. (France) Dahabiah, J. Puentes, and B. Solaiman, "Venous. thrombosis supervised image indexing and fuzzy retrieval", *The 29th IEEE EMBS Annual International Conference*, Lion France , Mar. 2007.

3. (Canada) A. Khademi and S. Krishnan, "Multiresolution analysis and classification of small bowel medical images", *The 29th IEEE EMBS Annual International Conference*, Lion France , Mar. 2007.

4. (Singapore) A. K. Ng, T.S. Koh, C. H. Thng, "A level-wavelet-dependent scheme for biomedical image denoising via shift-invariant wavelet transform", *The 29th IEEE EMBS Annual International Conference*, Lion France , Mar. 2007.

5. (Turkey) K. Cemal, S. Ugur, G. Okyay, "A statistical segmentation method using age-related macular degeneration in retinal fundus. images", *IEEE Transactions on Medical Imaging (TMI)*, Nov. 2007.

6. (Unknown) Anonymous. review, "A local likelihood-based active contour model for brain MRI segmentation", *The 11th IEEE International Conference on Computer Vision (ICCV)*, Rio de Janeiro, Brazil, Oct. 2007.

7. (Unknown) Anonymous. review, "Dense multiscale motion extraction from cardiac cine MR tagging using HARP technology", *The 11th IEEE International Conference on Computer Vision*, Rio de Janeiro, Brazil, Oct. 2007.

8. (Unknown) Anonymous. review, "Finding a closed boundary by growing minimal paths from a single point on 2D or 3D images", *The 11th IEEE International Conference on Computer Vision,* Rio de Janeiro, Brazil, Oct. 2007.

9. (Unknown) Anonymous. review, "Optimization algorithms for labeling brain sulci based on graph matching", *The IEEE Computer Society Workshop on Mathematical Methods in Biomedical Image Analysis in Conjunction with ICCV*, Rio de Janeiro, Brazil, Oct. 2007.

10. (Unknown) Anonymous. review, "Motion analysis of endovascular stent-grafts by MDL based registration", *The IEEE Computer Society Workshop on Mathematical Methods in Biomedical Image Analysis in Conjunction with ICCV*, Rio de Janeiro, Brazil, Oct. 2007.

11. (Unknown) Anonymous. review, "The importance of using labeled data for blood vessel extraction", *The IEEE Computer Society Workshop on Mathematical Methods in Biomedical Image Analysis in Conjunction with ICCV*, Rio de Janeiro, Brazil, Oct. 2007.

PROFESSIONAL MEMBERSHIPS

- The Institute of Electrical and Electronics Engineers (IEEE) Member (2008 - 2011)
- The Engineering in Medicine and Biology Society (EMBS) Member (2008 - 2011)
- The German Academic International Network (GAIN) Member (2008 - 2011)
- The Society of Photographic Instrumentation Engineers (SPIE) Member (2008 - 2011)
- The Korean American Scientists and Engineers Association (KSEA) Member (2009 - 2011)

FUNDING GRANTS

- **Biomedical Image Engineering of Macular Images (1 R01 EY015520-01A2)**
  - Total Estimated Project Funding: $1,151,724.00 million
  - Funding Opportunity Announcement (FOA): PA-07-070.

- **Absolute Fundus Autofluorescence in Retinal Degenerations (2 R01 EY015520-06)**
  - Total Estimated Project Funding: $3,474, 862.00 million
  - Funding Opportunity Announcement (FOA): PA-07-070

- **Mindboggling Shape Analysis and Identification (1 R01 MH 084029-01A1)**
  - Total Estimated Project Funding: $1,197,960.00 million
  - Funding Opportunity Announcement (FOA): PA-07-070

- **Informatics Platform for Interactive Exploration of Longitudinal Multimodal Data: Brain Tumor Management**
  - Total Estimated Project Funding: $6,410,617.00 million
  - Funding Opportunity Announcement (FOA): PAR-07-352

EDUCATION

Columbia University **New York, USA**

- Ph.D. in Biomedical Engineering **May 2011**
- Thesis: Synergizing human-machine intelligence: visualizing, labeling, and mining the electronic health record
- Advisor: Prof. Andrew F. Laine, D.Sc.
- Committee: Dr. T. Smith, Dr. S. Ebadollahi, Dr. P. Sajda

Columbia University **New York, USA**

- M.Phil. in Biomedical Engineering **May 2006**
- Advisor: Prof. Andrew F. Laine, D.Sc

Berliner Hochschule für Technik (BHT) (University of Applied Sciences) **Berlin, Germany**

- Diploma in Media Informatics (GPA 4.0/4.0) **Jan 2004**

- Graduated with distinction (Summa Cum Laude)
- Thesis: "A color code for object identification and a method for encoding and decoding".

TEACHING EXPERIENCE

- Graduate Teaching Assistant, Columbia University **2005 – 2011**