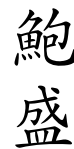


Forrest Sheng Bao

+1 (806) 853-7869
✉ forrest.bao@gmail.com

http://fsbao.net,
http://www.cs.iastate.edu/people/
forrest-sheng-bao



Academic Work and Education

- 2017 – now Assistant Professor, Dept. of Computer Science, Iowa State University, Iowa.
2013 – 2017 Assistant Professor, Dept. of Electrical & Computer Engineering, Univ. of Akron, Ohio.
2012 – 2013 Postdoc, Computational Neuroscience, School of Medicine, SUNY Stony Brook, New York.
2007 – 2012 Ph.D., Computer Science (minor Electrical Engineering), Texas Tech University, Texas.
Dissertation: Temporal Planning Using Answer Set Programming and Constraint Logic Programming
Committee members: Yuanlin Zhang, Michael Gelfond (AAAI fellow), Changzhi Li, Richard Watson

Research Interests

- Artificial Intelligence Applied Machine Learning, Natural Language Processing (NLP), Knowledge Representation
Biomedical Data Computational Neuroscience (signal and image processing with machine learning for EEG and MRI),
Analysis Bioinformatics (systems/synthetic biology, RNA regulation)
Others Wireless/Computer Networking, IoT/Embedded Systems, Computer Vision/Augmented Reality

External Research Grants

From U.S. Federal Agencies

- original member in the center grant, PI of \$80,000 in Year 1 of \$5M over 5 years
PI, 50% of \$470,000 2016-2021, **Federal Aviation Administration (FAA)** Center of Excellence for Technical Training and Human Performance (15-C-TTHP-100PM71515). PI in 2 projects to date: ►Curriculum Architecture Gap Analysis, using NLP to analyze the redundancy and inconsistency between documents (\$45,000 in Y1), ►Technical Training Knowledge Architecture (\$35,000 in Y1).
Co-I, 30% of \$520,000 \$232,000, 2016-2019, **National Science Foundation (NSF)**, MCB-1616216, Collaborative Research: Productivity Prediction of Microbial Cell Factories using Machine Learning and Knowledge Engineering.
subcontractor \$40,000, 2012-2013, **National Institutes of Health (NIH)** U01 MH074813 supplement. Subcontracted from Columbia Medical School for neuroimaging project MindBoggle (<http://mindboggle.info>), in charge of automated cerebral cortex structure extraction and characterization from human brain MRI.

From the Industry

- Sole PI, \$35,000 \$35,000, 2016-2018, Asymmetric Return Capital (New York, NY), Using machine learning for time series analysis with emphasis on financial data
Co-PI, 50% of \$25,000 \$12,500, 2015, **Microsoft** Human Factors Engineering Lab (Redmond, WA), Classifying Users' Emotional State during Video-Game Playing Using EEG Data.
Sole PI, \$20,000 \$20,000, 2015-2016, MESNAC Americas Research Center (Akron, OH), Development of Machine Learning Programs for Mesnac Tire Building Machine
Sole PI, \$15,000 \$15,000, 2015-2016, Fluidmatics LLC (Gig Harbor, WA), Development of a Specialized Particle Counter

Selected Publications

*Full publication list: <http://scholar.google.com/citations?user=XWpFf0IAAAAJ> Total citations: 600+, *h*-index: 9

Journal Papers

- PLoS Computational Biology Arno Klein, Satrajit Ghosh, **Forrest S. Bao**, *et al.*, "Mindboggling Morphometry of Human Brains," *PLoS Computational Biology*, 13(2): e1005350, 2017

- PLoS One Duo Chen, Suiren Wan, Jing Xiang, and **Forrest S. Bao**, “A High-performance Seizure Detection Algorithm based on Discrete Wavelet Transform (DWT) and EEG,” *PLoS One*, in press, 2017
- AI Review **Forrest S. Bao et al.**, “Accelerating Boolean Satisfiability (SAT) Solving by Common Subclause Elimination,” *Artificial Intelligence Review*, in press, 2017
- IEEE Sensors Journal Sriharsha Vankamamidi, Shivakumar Sastry, Mukesh K. Chippa, **Forrest S. Bao**, and Nghi H. Tran, “Fusing Joint Information from Multiple Kinect Cameras to Detect Errors in Exercises,” *IEEE Sensors Journal*, under revision, 2016
- ParCo Dai Dong, **Forrest S. Bao**, Jiang Zhou and Yong Chen, “Block2Vec: A Deep Learning Strategy to Mine Block,” *Parallel Computing*, under review, 2016
- IEEE T-NSRE Duo Chen, Shuren Wang, **Forrest S. Bao**, “Epileptic Focus Localization Using Discrete Wavelet Transform Based on Interictal Intracranial EEG,” *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, in press, 2016
- IEEE Sensors Journal **Forrest S. Bao et al.**, “Coverage-Based Lossy Node Localization for Wireless Sensor Networks”, *IEEE Sensors Journal*, vol. 16, no. 11, June 2016
- PLoS Computational Biology Stephen Gang Wu, Yuxuan Wang, Wu Jiang, Tolutola Oyetunde, Ruilian Yao, Kazuyuki Shimizu, Yinjie J. Tang, and **Forrest S Bao**, “Rapid Prediction of Bacterial Heterotrophic Fluxomics using Machine Learning and Constraint Programming”, *PLoS Computational Biology*, 12(4): e1004838, Apr. 19, 2016
- J. Computational Biology Duo Chen, Jiasong Wang, Ming Yan, **Forrest S. Bao**, “A Complex Prime Numerical Representation of Amino Acids for Protein Function Comparison”, *Journal of Computational Biology*, vol. 23, no. 8, pp. 669–677, 2016
- Comput. Intell. **Forrest S. Bao** and Yuanlin Zhang, “A Review of Tree Convex Sets Test,” *Computational Intelligence*, vol. 28, Issue 3, pp. 358–372, August 2012 (Impact Factor: 5, at the time of submission)
- Comput. Intell. & Neurosci. **Forrest S. Bao**, Xin Liu and Christina Zhang, “PyEEG: An Open Source Python Module for EEG/MEG Feature Extraction,” *Computational Intelligence and Neuroscience*, March, 2011
- PLoS One Xiaopeng Qi, **Forrest S. Bao** and Zhixin Xie, “Small RNA Deep Sequencing Reveals Role for Arabidopsis thaliana RNA-dependent RNA Polymerases in Viral siRNA Biogenesis,” *PLoS One*, 4(3):4971, Mar. 24, 2009

Peer-reviewed Conference Papers

- EACL 2017 Yinfei Yang, **Forrest S. Bao** and Ani Nenkova, “ Detecting (Un)Important Content for Single-Document News Summarization”, *The 15th Conference of the European Chapter of the Association for Computational Linguistics*, 2017
- EACL 2017 Yinfei Yang, Cen Chen, **Forrest S. Bao**, “ Aspect Extraction from Product Reviews Using Category Hierarchy Information”, *The 15th Conference of the European Chapter of the Association for Computational Linguistics*, 2017
- IEEE ICTAI 2016 Yinfei Yang, Cen Chen, and **Forrest S. Bao**, “Aspect-Based Helpfulness Prediction for Online Product Reviews”, *28th IEEE Int’l Conf. on Tools with Artificial Intelligence*, 2016
- IEEE BIBM 2015 Duo Chen, Shuren Wan, and **Forrest S. Bao**, “EEG-based seizure detection using discrete wavelet transform through full-level decomposition”, *2015 IEEE Int’l Conf. on Bioinformatics and Biomedicine*, 2015
- IEEE MLSP 2015 Duo Chen, Shuren Wan, and **Forrest S. Bao**, “Epileptic Focus Localization Using EEG Based On Discrete Wavelet Transform Through Full-Level Decomposition”, *IEEE 25th Int’l Workshop on Machine Learning for Signal Processing*, 2015
- IEEE GLOBECOM 2015 Yaowei Yan, Nghi Huu Tran, and **Forrest S. Bao**, “Gossiping Along the path: A Direction-Biased Routing Scheme for Wireless Ad Hoc Networks”, *2015 IEEE Global Communications Conference*, 2015
- ACL-2015 Yinfei Yang, Yaowei Yan, Minghui Qiu, **Forrest S. Bao**, “Semantic Analysis and Helpfulness Prediction of Text for Online Product Reviews”, *53rd Annual Meeting of the Association for Computational Linguistics*, 2015
- AAAI-15 Yaowei Yan, Chris Gutierrez, Jeriah Jn-Charles, **Forrest S. Bao** and Yuanlin Zhang, “Accelerating SAT Solving by Common Subclause Elimination”, *29th AAAI Conf. on Artificial Intelligence*, Jan. 2015
- IEEE WCNC 2014 **Forrest S. Bao, et al.**, “Coverage-Based Lossy Node Localization in Wireless Sensor Networks Using Chi-Square Test”, *IEEE Wireless Communication and Networking Conference 2014*, Apr. 2014

- IEEE EMBC 2012 **Forrest S. Bao et al.**, “Automated extraction of nested sulcus features from human brain MRI data,” *34th Annual Int’l Conf. of the IEEE Engineering in Medicine and Biology Society*, 2012
- AAAI-12 Shiqi Zhang, **Forrest S. Bao**, and Mohan Sridharan, “Combining Probabilistic Planning and Logic Programming on Mobile Robots,” *26th AAAI Conf. on Artificial Intelligence*, 2012
- AAAI-12 **Forrest S. Bao**, and Yuanlin Zhang, “Temporally Expressive Planning Based on Answer Set Programming with Constraints,” *26th AAAI Conf. on Artificial Intelligence*, 2012
- AAAI-11 **Forrest S. Bao et al.**, “Resolving Medical Treatment Conflict with Prioritized Symptoms in Answer Set Programming,” *25th AAAI Conf. on Artificial Intelligence*, 2011
- IEEE EMBC 2010 **Forrest S. Bao et al.**, “Performance of Dynamic Features in Classifying Scalp Epileptic Interictal and Normal EEG,” *32nd Annual Int’l Conf. of the IEEE Engineering in Medicine and Biology Society*
- IEEE BIBE 2010 **Forrest S. Bao**, Zhixin Xie and Yuanlin Zhang, “Fast Phased Small RNA Cycle Counting Algorithms,” *10th IEEE Int’l Conf. on Bioinformatics and Bioengineering*
- IEEE EMBC 2009 **Forrest S. Bao et al.**, “Automated Epilepsy Diagnosis Using Interictal Scalp EEG,” *31st Annual Int’l Conf. of the IEEE Engineering in Medicine and Biology Society*, 2009
- IEEE ICTAI 2008 Lei Yuan, **Forrest S. Bao** and Guanming Lu, “Automatic Analysis of Facial Expressions of Acute Pain in Neonates Using Boosted Gabor Features,” *20th IEEE Int’l Conf. on Tools with Artificial Intelligence*
- IEEE ICTAI 2008 **Forrest S. Bao et al.**, “A New Approach to Automated Epileptic Diagnosis Using EEG and Probabilistic Neural Network,” *20th IEEE Int’l Conf. on Tools with Artificial Intelligence*
- IEEE WCNC 2007 Yijin Zhang, **Forrest S. Bao et al.**, “Analysis of Energy Efficiency and Power Saving in IEEE 802.15.4”, *2007 IEEE Wireless Communication & Networking Conference*

Book Chapters

- contributor Chapter 39: Entropy-Based Individual/Community Mobility Model, Handbook of Mobile Ad Hoc Networks for Mobility Models, Springer, 2010

Selected Professional Services

- Jr. assoc. editor: IEEE Journal of Translational Engineering in Health and Medicine, 2012-2016
- Session chair: “AI in Medicine”, 20th IEEE Int’l Conference on Tools with Artificial Intelligence (ICTAI’08)
- Program/Technical Committee member: 23rd Int’l Joint Conference on Artificial Intelligence (IJCAI 2013), IEEE 27-29th Int’l Symposium on Computer-Based Medical System (CBMS 2014, 2015, 2016), 30th-32nd AAAI Conference on Artificial Intelligence (AAAI-16, AAAI-17, AAAI-18), IEEE GLOBECOM 2016-2017, IEEE ICC’17
- Journal reviewer: IEEE Journal of Biomedical and Health Informatics, IEEE Transactions on Image Processing, IEEE/ACM Transactions on Computational Biology and Bioinformatics, Wireless Communications & Mobile Computing (John Wiley & Sons), Neural Processing Letters, Computational Intelligence, Brain Connectivity, Journal of Neuroscience Methods

Media Reports or Interviews

- Lancet Neurology “Brainwaves from Bhutan”, vol. 14, no. 12, pp. 1154–1155, December 2015, [http://www.thelancet.com/journals/lanneur/article/PIIS1474-4422\(15\)00311-7](http://www.thelancet.com/journals/lanneur/article/PIIS1474-4422(15)00311-7)
- MIT Technology Review “A Neural Net That Diagnoses Epilepsy”, April 29, 2009, <http://www.technologyreview.com/blog/arxiv/23465/>
- epilepsyUSA* The official magazine of Epilepsy Foundation of America, “New Diagnostic Tool for Automatic Epilepsy Diagnosis?” no. 5, pp. 9–10, 2009