Ahmad P. Tafti, PhD

Department of Health Sciences Research
Mayo Clinic

Email: ahmad.ptafti@gmail.com
Home: https://aptafti.github.io

Research Interests

Artificial Intelligence, Machine Learning, Computational Health Informatics

Education

2016–2017	Postdoctoral Fellow, Biomedical Informatics Research Center, Marshfield Clinic Research Institute
2013–2016	Ph.D., Computer Science, University of Wisconsin-Milwaukee
2008–2011	M.Sc., Computer Science, Azad University, UAE and Iran
1993–1998	B.Sc., Computer Science, Azad University, Iran

Appointments

Jul. 2018–Present	Research Associate, Mayo Clinic, USA
Feb. 2018–Jul. 2018	Faculty Trainer, Computation and Informatics in Biology and Medicine, University of Wisconsin-Madison, USA.
2017–May 2018	Research Scientist, Marshfield Clinic Research Institute, USA
2016–2017	Postdoctoral Fellow, Marshfield Clinic Research Institute, USA
2013–2016	Teaching/Research Assistant, Computer Science Department, University of Wisconsin-Milwaukee, USA
1998–2012	Database Administrator, ASYCUDA Project, Iran

Teaching Assistant

CS 595	Capstone Project	University of Wisconsin-Milwaukee
CS 557	Introduction to Database Systems	University of Wisconsin-Milwaukee
CS 361	Introduction to Software Engineering	University of Wisconsin-Milwaukee
CS 250	Introductory Computer Programming	University of Wisconsin-Milwaukee
CS 240	Introduction to Engineering Programming	University of Wisconsin-Milwaukee

Honors and Awards

2017	NVIDIA GPU Grant, NVIDIA
2016	Best Reviewer Award, The Society of Digital Information and Wireless Communications (SDIWC)
2016	3rd Place with Dr. A. Baghaie, Larry Hause Student Poster Competition, IEEE
2015	GE Healthcare Honorable Mention Award, UWM Student Poster Competition, GE
2015	Travel Award, 11th International Symposium on Visual Computing (ISVC)
2014	Travel Award, 10th International Symposium on Visual Computing (ISVC)

Publications

Google Scholar profile: https://scholar.google.com/citations?user=NxeXUqwAAAAJ&hl=en

Journal and Conference Papers

[1] **Tafti AP**, Bashiri F, LaRose E, Peissig P. Diagnostic Classification of Lung CT Images using Deep 3D Multi-Scale Convolutional Neural Network. Accepted at ICHI 2018, 2018.

[2] **Tafti AP**, Assefi M, LaRose E, Badger J, Shimpi N, Bashiri F, Shaghb E, McLean H, Page D, Peissig P. Big data deep neural network to analyze adverse vaccine reactions. AMIA 2018 Informatics Summit. 2018.

[3] Bashiri FS, LaRose E, Peissig P, **Tafti AP**. MCIndoor20000: a fully-labeled image dataset to advance indoor objects detection. Data in Brief. 2018 Jan 3.

[4] Wu Y, Fan J, Peissig P, Berg R, **Tafti AP**, Yin J, Yuan M, Page D, Cox J, Burnside ES. Quantifying predictive capability of electronic health records for the most harmful breast cancer. InMedical Imaging 2018: Image Perception, Observer Performance, and Technology Assessment 2018 Mar 7 (Vol. 10577, p. 105770J). International Society for Optics and Photonics.

[5] **Tafti AP**, Badger J, LaRose E, Shirzadi E, Mahnke A, Mayer J, Ye Z, Page D, Peissig P. Adverse Drug Event Discovery Using Biomedical Literature: A Big Data Neural Network Adventure. JMIR Medical Informatics. 2017;5(4):e51.

[6] **Tafti AP**, LaRose E, Badger JC, Kleiman R, Peissig P. Machine learning-as-a-service and its application to medical informatics. InInternational Conference on Machine Learning and Data Mining in Pattern Recognition 2017 Jul 15 (pp. 206-219). Springer, Cham.

[7] Baghaie A, **Tafti AP**, Owen HA, D'Souza RM, Yu Z. SD-SEM: sparse-dense correspondence for 3D reconstruction of microscopic samples. Micron. 2017 Jun 1;97:41-55.

[8] Baghaie A, **Tafti AP**, Owen HA, D'Souza RM, Yu Z. Three-dimensional reconstruction of highly complex microscopic samples using scanning electron microscopy and optical flow estimation. PloS one. 2017 Apr 6;12(4):e0175078.

[9] Mehdi Assefi, Ehsun Behravesh, Guangchi Liu, **Tafti AP**. Big data machine learning using apache spark MLlib, Big Data (Big Data) 2017 IEEE International Conference on, pp. 3492-3498, 2017.

[10] **Tafti AP**, Behravesh E, Assefi M, LaRose E, Badger J, Mayer J, Doan A, Page D, Peissig P. bigNN: an open-source big data toolkit focused on biomedical sentence classification. Big Data (Big Data) 2017 IEEE International Conference on, 2017.

[11] Ye Z, **Tafti AP**, He KY, Wang K, He MM. Sparktext: Biomedical text mining on big data framework. PloS one. 2016 Sep 29;11(9):e0162721.

[12] **Tafti AP**, Baghaie A, Assefi M, Arabnia HR, Yu Z, Peissig P. OCR as a Service: An Experimental Evaluation of Google Docs OCR, Tesseract, ABBYY FineReader, and Transym. InInternational Symposium on Visual Computing 2016 Dec 12 (pp. 735-746). Springer, Cham.

[13] Omrani E, **Tafti AP**, Fathi MF, Moghadam AD, Rohatgi P, D'Souza RM, Yu Z. Tribological study in microscale using 3D SEM surface reconstruction. Tribology International. 2016 Nov 1;103:309-15.

[14] **Tafti AP**, Holz JD, Baghaie A, Owen HA, He MM, Yu Z. 3DSEM++: Adaptive and intelligent 3D SEM surface reconstruction. Micron. 2016 Aug 1;87:33-45.

[15] **Tafti AP**, Kirkpatrick AB, Holz JD, Owen HA, Yu Z. 3DSEM: A 3D microscopy dataset. Data in Brief. 2016 Mar 1;6:112-6.

[16] Zhao M, Luo H, **Tafti AP**, Lin Y, He G. A Hybrid Real-Time Visual Tracking Using Compressive RGB-D Features. InInternational Symposium on Visual Computing 2015 Dec 14 (pp. 561-573). Springer, Cham.

[17] **Tafti AP**, Hassannia H, Piziak D, Yu Z. Selibcv: a service library for computer vision researchers. InInternational Symposium on Visual Computing 2015 Dec 14 (pp. 542-553). Springer, Cham.

[18] **Tafti AP**, Kirkpatrick AB, Alavi Z, Owen HA, Yu Z. Recent advances in 3D SEM surface reconstruction. Micron. 2015 Nov 1;78:54-66.

[19] **Tafti AP**, Hassannia H, Borji A, Yu Z. Computer Vision as a Service: Towards an Easy-To-Use Platform for Computer Vision Researchers. CVPR Workshop. 2015.

[20] **Tafti AP**, Hassannia H, Yu Z. siftservice. com-Turning a Computer Vision algorithm into a World Wide Web Service. arXiv preprint arXiv:1504.02840. 2015 Apr 11.

[21] Bardosi Z, Granata D, Lugos G, **Tafti AP**, Saxena S. Metacarpal Bones Localization in X-ray Imagery Using Particle Filter Segmentation. arXiv preprint arXiv:1412.8197. 2014 Dec 28.

[22] **Tafti AP**, Kirkpatrick AB, Owen HA, Yu Z. 3D microscopy vision using multiple view geometry and differential evolutionary approaches. InInternational Symposium on Visual Computing 2014 Dec 8 (pp. 141-152). Springer, Cham.

[23] **Tafti AP**, Maarefdoust R. Digital Images Encryption in Spatial Domain Based on Singular Value Decomposition and Cellular Automata. International Journal of Computer Science and Information Security. 2013 Apr 1;11(4):121.

[24] Malakooti MV, **Tafti AP**, Naji HR. An efficient algorithm for human cell detection in electron microscope images based on cluster analysis and vector quantization techniques. InDigital Information and Communication Technology and it's Applications (DICTAP), 2012 Second International Conference on 2012 May 16 (pp. 125-129). IEEE.

[25] **Tafti AP**, Janosepah S. Digital images encryption in frequency domain based on DCT and one dimensional cellular automata. InInternational Conference on Informatics Engineering and Information Science 2011 Nov 14 (pp. 421-427). Springer, Berlin, Heidelberg.

[26] **Tafti AP**, Malakooti MV, Ashourian M, Janosepah S. Digital image forgery detection through data embedding in spatial domain and cellular automata. InDigital Content, Multimedia Technology and its Applications (IDCTA), 2011 7th International Conference on 2011 Aug 16 (pp. 11-15). IEEE.

Book Chapter

[1] **Tafti AP**, Hassannia H. Active Image Forgery Detection Using Cellular Automata. InCellular Automata in Image Processing and Geometry 2014 (pp. 127-145). Springer, Cham.

Thesis

[1] **Tafti AP**. 3D SEM surface reconstruction: An optimized, adaptive, and intelligent approach (Doctoral dissertation, The University of Wisconsin-Milwaukee). 2016

Professional Activities

Keynote Speaker

- The Journey from Machine Learning to Deep Learning Workshop, Marquette University. Milwaukee, USA. 2018. URL : http://www.marquette.edu/mscs/sctc-2018-deep-learning.shtml

Selected GitHub Contributions

- bigNN: an open-source big data toolkit focused on biomedical sentence classification. URL : https://github.com/bircatmcri/bigNN

- MCIndoor20000: a fully-labeled image dataset to advance indoor objects detection. URL : https://github.com/bircatmcri/MCIndoor20000

Selected Scientific Talks

- 3D Surface Modeling of Microscopic Objects. Marshfield Clinic. Marshfield, USA. 2017. URL : https://www.youtube.com/watch?v=rCCVJ0slY8o
- Data Mining Biomedical Literature in the Cloud. Marshfield Clinic. Marshfield, USA. 2015. URL : https://www.youtube.com/watch?v=p1HTnhZfOM8&t=9s

Grant Reviewer

- UW Institute for Clinical and Translational Research. URL : https://ictr.wisc.edu/

Workshop Organizer

- Big data-as-a-Service: Algorithms, Architecture, and Applications in Healtcare Informatics. KDD 2017. URL : https://bigdas.org
- Computer Vision-as-a-Service. ISVC 2016. URL : http://www.isvc.net/ST4.pdf

Editorial Board

- International Journal of Computer Vision & Signal Processing. URL : http://cennser.org/IJCVSP/committee.html
- Journal of Electronics and Communication Engineering. URL : http://verizonaonlinepublishing.com/JournalofElectronicsandCommunicationEngineeringResearchEditors.aspx

Technical Reviewer

- AMIA 2018 Informatics Summit. URL : https://www.amia.org/2018-informatics-summit
- AMIA 2017 Joint Summits on Translational Science. URL : https://www.amia.org/jointsummits2017
- Signal Processing. URL : https://www.journals.elsevier.com/signal-processing
- Ultramicroscopy. URL : https://www.journals.elsevier.com/ultramicroscopy
- Micron. URL : https://www.journals.elsevier.com/micron
- IEEE Journal of Biomedical and Health Informatics. URL : https://jbhi.embs.org/

Computer Skills

Programming: Java, Python, SQL.

Machine Learning libraries: Weka, SciPy, Scikits.

Deep Learning libraries: TensorFlow, Keras.

NLP libraries: Stanford CoreNLP, NLTK.

Computer Vision libraries: OpenCV, BoofCV.

Database: Oracle, SQL Server, Elasticsearch.

Big data solutions: Apache Spark.