Curriculum Vitae

Ahmad Pahlavan Tafti

Associate Research Scientist
Biomedical Informatics Research Center (BIRC)
Marshfield Clinic Research Institute (MCRI), WI, USA

I completed my Ph.D. in Computer Science Department at University of Wisconsin-Milwaukee, USA. My primary research interests broadly lie in 3D Computer Vision, Deep Learning, Machine Learning, Pattern Recognition and Big Data analysis and their applications in health informatics.

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Education

- **PhD in Computer Science** – University of Wisconsin-Milwaukee, USA: 2016
  Thesis title: "*3D SEM Surface Reconstruction: An Optimized, Adaptive, and Intelligent Approach*".
  Advisor: Dr. Zeyun Yu.

- **Master in Computer Science** – Software Engineering, IAU, UAE and Iran: 2011
  Thesis title: "*Digital image forgery detection through statistical data embedding in spatial domain and cellular automata*".
  Advisor: Dr. M.V.Malakooti.
  Co-Advisor: Dr. M. Ashourian.

- **Bachelor in Computer Science** – Software Engineering, IAU, Iran: 1998
  Thesis title: "*Simulation of Basic Computer Architecture*".
  Advisor: Dr. M.H.Yaghmayii.

- **Elastic: Elastic Machine Learning** (X-Pack Machine Learning), 2017.

- **Coursera: Practical Machine Learning,** John Hopkins University: 2016.

- **Coursera: Machine Learning,** Stanford University, 2015.

- **Coursera: R Programming,** John Hopkins University: 2015.

- **International Studies: Summer School on Image Processing (SSIP 2012); Medical Image Analysis, Visualization and Retrieval**- at Technical University of Vienna and Medical University of Vienna, Vienna, Austria: 2012

- **International Studies: Enterprise Oracle DBA Part 1A**, Architecture and Administration- at ORACLE Education Center, KL, Malaysia: 2001

- **International Studies: Enterprise Oracle DBA Part 1B**, Backup and Recovery Workshop- at ORACLE Education Center, KL, Malaysia: 2001

- **International Studies: Enterprise Oracle DBA Part 2**, Performance Tuning- at ORACLE Education Center, KL, Malaysia: 2001

Fields of Interests

3D Computer Vision, Deep Learning, Machine Learning and Big Data Analytics.

Professional and Work Experiences

- **Marshfield Clinic Research Foundation, Marshfield, WI, USA.**   May 2017 – Present
  Associate Research Scientist [Link]

- **Marshfield Clinic Research Foundation, Marshfield, WI, USA.**   June 2016 – April 2017
  Postdoctoral Scholar [Link]

- **bigdas@KDD2017, Halifax, Canada**   2017
  Organizer [Link]

- **ISVC 2016, Las Vegas, Nevada, USA.**   2016
  Program Committee [Link]

- **Marshfield Clinic Research Foundation, Marshfield, WI, USA.**   Summer 2015
  Graduate Research Assistant Intern [Link]

- **University of Wisconsin Milwaukee, Milwaukee, WI, USA.**   Jan.2013-May.2016
  Biomedical Modeling and Visualization Lab.
  Graduate Research Assistant & Developer [Link]

- **University of Wisconsin Milwaukee, Milwaukee, WI, USA.**   Jan.2013-May.2016
  Graduate Teaching Assistant [Link]

  Graduate Teaching Assistant for the following courses:
  - Introduction to Database Systems (CS 557)
  - Capstone Project (CS 595)
  - Introduction to Software Engineering (CS 361)

- Introductory Computer Programming (Java) (CS 250)
- Introduction to Engineering Programming (Matlab) (CS 240)

- **ASYCUDA Project (IRICA), Mashhad, Iran.**   1998-2012
  Database Administrator

Editorial Board and Technical Reviewer Activities

Journal Reviewer

- **IEEE Journal of Biomedical and Health Informatics, IEEE.**
- **Micron, Elsevier.**
- **Ultramicroscopy, Elsevier.**
- **Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization, Taylor & Francis.**
- **International Journal of Rough Sets and Data Analysis, IGI-Global.**
- **International Journal of Computer Vision and Image Processing, IGI-Global.**
- **International Journal of Biomedical Science and Engineering, Science PG.**

Editorial Board Member

- **International Journal of Computer Vision & Signal Processing.**
- **International Journal of Biomedical Science and Engineering, Science PG,**

Conference Program Committee/Reviewer

- **International Symposium on Visual Computing (ISVC), USA.**
- **IEEE International Conference on Artificial Intelligence and Pattern Recognition, Poland.**
- **IEEE International Conference on Digital Information Processing, Data Mining, and Wireless Communications**

Workshop Organizer

- **Big Data Analytics-as-a-Service: Architecture, Algorithms, and Applications in Health Informatics, KDD 2017. (**http://bigdas.org/**)**
- **Computer Vision-as-a-Service, ISVC, 2016. (**http://isvc.net/ST4.pdf**)**

Publications (Journal Articles and Conference Papers)

[1] **Tafti A.P.**, LaRose E., Badger J.C., Kleiman R., Peissig P. (2017) Machine Learning-as-a-Service and Its Application to Medical Informatics. In: Perner P. (eds) Machine Learning and Data Mining in Pattern Recognition. MLDM 2017. Lecture Notes in Computer Science, vol 10358. Springer.

[2] Baghaie, A., **Tafti, A.P.**, Owen, H.A., D'Souza, R.M. and Yu, Z., 2017. Three-dimensional reconstruction of highly complex microscopic samples using scanning electron microscopy and optical flow estimation. PloS one, 12(4), p.e0175078.

[3] Baghaie, A., **Tafti, A.P.**, Owen, H.A., D'Souza, R.M. and Yu, Z., 2017. SD-SEM: Sparse-Dense Correspondence for 3D Reconstruction of Microscopic Samples. Micron.

[4] Tafti, A.P., Baghaie, A., Assefi, M., Arabnia, H.R., Yu, Z. and Peissig, P., 2016, December. OCR as a Service: An Experimental Evaluation of Google Docs OCR, Tesseract, ABBYY FineReader, and Transym. In International Symposium on Visual Computing (pp. 735-746). Springer International Publishing.

[5] Ye, Z., **Tafti, A.P.**, He, K.Y., Wang, K. and He, M.M., 2016. SparkText: Biomedical Text Mining on Big Data Framework. PLOS ONE, 11(9), p.e0162721.

[6] Tafti, A.P., Holz, J.D., Baghaie, A., Owen, H.A., He, M.M. and Yu, Z., 2016. 3DSEM++: Adaptive and intelligent 3D SEM surface reconstruction. Micron, 87, pp.33-45.

[7] Omrani, E., **Tafti, A.P.**, Fathi, M.F., Moghadam, A.D., Rohatgi, P., D'Souza, R.M. and Yu, Z., 2016. Tribological Study in Micro Scale Using 3D SEM Surface Reconstruction. Tribology International.

[8] Tafti, A.P., Kirkpatrick, A.B., Holz, J.D., Owen, H.A. and Yu, Z., 2016. 3DSEM: A 3D microscopy dataset. Data in Brief, 6, pp.112-116.

[9] Tafti, A.P., Baghaie, A., Kirkpatrick, A.B., Holz, J.D., Owen, H.A., D'Souza, R.M. and Yu, Z., 2016. A Comparative study on the application of SIFT, SURF, BRIEF and ORB for 3D surface reconstruction of electron microscopy images. Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization, pp.1-14.

[10] Tafti, A.P., Hassannia, H., Piziak, D. and Yu, Z., 2015. SeLibCV: A Service Library for Computer Vision Researchers. In Advances in Visual Computing (pp. 542-553). Springer International Publishing.

[11] Zhao, M., Luo, H., **Tafti, A.P.**, Lin, Y. and He, G., 2015. A Hybrid Real-Time Visual Tracking Using Compressive RGB-D Features. In Advances in Visual Computing (pp. 561-573). Springer International Publishing.

[12] Tafti, A.P., Kirkpatrick, A.B., Alavi, Z., Owen, H.A. and Yu, Z., 2015. Recent advances in 3D SEM surface reconstruction. Micron, 78, pp.54-66.

[13] Tafti, A.P., Hassannia, H., Borji, A., and Yu, Z., 2015. Computer Vision as a Service: Towards an Easy-To-Use Platform for Computer Vision Researchers. CVPR 2015: Vision Industry and Entrepreneur Workshop (VIEW 2015).

[14] Tafti, A.P., Hassannia, H. and Yu, Z., 2015. siftservice. com-Turning a Computer Vision algorithm into a World Wide Web Service. arXiv preprint arXiv:1504.02840.

[15] Tafti, A.P., Kirkpatrick, A.B., Owen, H.A. and Yu, Z., 2014. 3D microscopy vision using multiple view geometry and differential evolutionary approaches. In Advances in Visual Computing (pp. 141-152). Springer International Publishing.

[16] Bardosi, Z., Granata, D., Lugos, G., **Tafti, A.P.**, and Saxena, S., 2014. Metacarpal Bones Localization in X-ray Imagery Using Particle Filter Segmentation. arXiv preprint arXiv:1412.8197.

[17] Tafti, A.P., and Maarefdoust, R., 2013. Digital Images Encryption in Spatial Domain Based on Singular Value Decomposition and Cellular Automata. International Journal of Computer Science and Information Security, 11(4), p.121.

[18] Malakooti, M.V., **Tafti, A.P.**, and Naji, H.R., 2012, May. An efficient algorithm for human cell detection in electron microscope images based on cluster analysis and vector quantization techniques. In Digital Information and Communication Technology and it's Applications (DICTAP), 2012 Second International Conference on (pp. 125-129). IEEE.

[19] Malakooti, M.V., **Tafti, A.P.**, Rohani, F. and Moghaddasifar, M.A., 2012, April. RGB digital image forgery detection using singular value decomposition and one dimensional cellular automata. In Computing Technology and Information Management (ICCM), 2012 8th International Conference on (Vol. 1, pp. 483-488). IEEE.

[20] Tafti, A.P., Malakooti, M.V., Ashourian, M. and Janosepah, S., 2011, August. Digital image forgery detection through data embedding in spatial domain and cellular automata. In Digital Content, Multimedia Technology and its Applications (IDCTA), 2011 7th International Conference on (pp. 11-15). IEEE.

[21] Tafti, A.P., and Janosepah, S., 2011. Digital images encryption in frequency domain based on DCT and one dimensional cellular automata. In Informatics Engineering and Information Science (pp. 421-427). Springer Berlin Heidelberg.

[22] Tafti, A.P., Janosepah, S., Modiri, N., Noudeh, A.M. and Alizadeh, H., 2011. Development of a Framework for Applying ASYCUDA System with N-Tier Application Architecture. In Software Engineering and Computer Systems (pp. 533-541). Springer Berlin Heidelberg.

Book and Book Chapter

[1] A. Pahlavan Tafti, H. Hassannia, "Active Image Forgery Detection Using Cellular Automata", invited book chapter in Cellular Automata in Image Processing and Geometry (Edited by P. Rosin), Pages 127-145, Springer, 2014. (**Book Chapter**)

[2] A. Pahlavan Tafti, Mahdi Assefi, "System Software", Nama Press, Iran, 2011. (**Book – in Persian Language**)

[3] A. Pahlavan Tafti, Mahdi Assefi, "Delphi 7 Programming: A Reference Guide", Naghoos Press, Iran, 2005. (**Book – in Persian Language**)

Awards and Honors

- **NVIDIA GPU,** NVIDIA GPU Grant Program, 2017.

- **Best Reviewer Award**, The Society of Digital Information and Wireless Communications (SDIWC), 2016.

- **GE Healthcare Honorable Mention Award**, UWM Poster Competition, USA, 2015.

- **Travel Award**, for 11th International Symposium on Visual Computing (ISVC), Las Vegas, NV, 2015.

- **Travel Award**, for 10th International Symposium on Visual Computing (ISVC), Las Vegas, NV, 2014.

Talks and Communications

- "How to teach computers to discover adverse drug events (ADEs) from big data biomedical literature", Marshfield Clinic Research Institute, Scientific Talk, March 2017.

- "3D Surface Modeling of Microscopic Objects: a Computer Vision Adventure", Marshfield Clinic Research Institute, Scientific Seminar Series, January 2017.

- "Data Mining Biomedical Literature in the Cloud", Marshfield Clinic Research Foundation, SSRIP Symposium 2015, USA: August 2015.

- "Biomedical Text Mining and its Applications in Cancer Research", Marshfield Clinic Research Foundation, Journal Club, USA: July 2015.

- "SIFT as a Service: Turning a Computer Vision Algorithm into a World Wide Web Service", UWM Poster Competition 2015, USA: April 2015

- "3D Microscopy Vision Using Multiple View Geometry and Differential Evolutionary Approaches", The 10th International Symposium on Visual Computing (ISVC), Las Vegas, USA: December 2014.

- "3D Surface Reconstruction of Microscopic Objects", Computer Science Department, University of Wisconsin Milwaukee, USA: April 2014

- "Multiple View Geometry and Structure from Motion", Advanced Computer Graphics class, Computer Science Department, University of Wisconsin Milwaukee, USA: April 2014

- "Particle Filter Segmentation", Summer School on Image Processing (SSIP 2012), Vienna, Austria: July 2012

- "Fault Tolerance Databases", 14th Local Conference for IT Experts, International Exhibition, Mashhad, Iran: May 2011

Qualifications

- **Programming Languages:** Java, SQL, PL/SQL, Matlab, R.

- **Java Technologies:** JSP, Servlets, Spring.

- **DBMS:** Oracle, MySQL, Cassandra, MongoDB, Elasticsearch DB.

- **Web Application Server:** Apache Tomcat.

- **Software Engineering:** Agile Software Development, RUP.

- **Protocols:** HTTP.

- **Web Technologies:** SOAP, RESTful.

- **Build Tools:** Maven.

- **Big Data Technologies:** Apache Spark, Apache Spark MLlib, Apache Cassandra, Apache Hadoop.

Membership

- **AMIA** (American Medical Informatics Association), USA.

- **IEEE** (Institute of Electrical and Electronics Engineers), USA.

- **ACM** (Association for Computing Machinery), USA.

- **MSA** (Microscopy Society of America), USA.

Please refere to my personal website for further information

http://aptafti.com