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Hesham H. Ali is a Professor of Computer Science and the director of the University of Nebraska Omaha (UNO) Bioinformatics Core Facility. He served as the Lee and Wilma Seemann Distinguished Dean of the College of Information Science and Technology at UNO between 2006 and 2021. He has published numerous articles in various IT areas including scheduling, distributed systems, data analytics, wireless networks, and Bioinformatics. He has also published two books in scheduling and graph algorithms, and several book chapters in Bioinformatics. He has been serving as the PI or Co-PI of several projects funded by National Science Foundation (NSF), National Institutes of Health (NIH) and Nebraska Research Initiative (NRI) in the areas of data analytics, wireless networks and Bioinformatics. He has also been leading a Research Group that focuses on developing innovative computational approaches to model complex biomedical systems and analyze big bioinformatics data. The research group is currently developing several next generation big data analytics tools for analyzing large heterogeneous biological and health data associated with various biomedical research areas, particularly projects associated with infectious diseases, microbiome studies, early childhood development and aging research. He has also been leading two projects for developing secure and energy-aware wireless infrastructure to address tracking and monitoring problems in medical environments, particularly to study mobility profiling for advancing personalized healthcare. He has led several local and national outreach initiatives including Women in IT initiatives, IT education and training programs, and IT summer internship camps.

Currently, his research interests include the areas of Biomedical Informatics, Sensor Networks, Graph Theory, Design and Analysis of Algorithms, Data Analytics, Machine Learning, and Mobile Computing. He has been a big supporter of IARIA as an organization and participated at

various levels in many of its events. He has published papers in various IARIA conferences, organized and participated in various panels, and delivered several keynote talks and tutorials. Below is a summary of his recent papers and academic contributions, highlighting the IARIA participation.

Selected Recent Journal Articles

1. R. K. Thelagathoti and H. Ali, "A Population Analysis Approach using Mobility Data and Correlation Networks for Depression Episodes Detection," to appear in Annals of Depression and Anxiety, 2022.
2. E. Rastegari, D. Orn, M. Zahiri, C. Nelson, H. Ali and K. Siu, "Assessing Laparoscopic Surgical Skills using Similarity Network Models: A Pilot Study," Journal of Surgical Innovation, March 2021.
3. M. Beaver, D. Lagundzin, I. Thapa, J. Lee, H. Ali, T. Kielian, and G. Skar, "*C. acnes* central nervous system catheter infection induces long-term changes in the CSF proteome," the Journal of Infection and Immunity, December 2020.
4. Q. Li, D. Ghersi, I. Thapa, L. Zhang, H. Ali and K. Cooper, "Measurement of Structural Change in Co-expression Networks from Cancer Gene Expression Data," Accepted for publication in the International Journal of Data Mining and Bioinformatics (IJDMB), December 2020.
5. I. Thapa and H. Ali, "A Multi-omics Graph Database System for Biological Data Integration and Cancer Informatics," Journal of Computational Biology, Volume 27, doi:10.1089cmb.2020.0231, September 2020.
6. S. West, H. Ali and D. Ghersi, "NEEP: null empirically estimated p-values for high-throughput molecular survival analysis," The Journal of Open Source Software, 5(52):2044, August 2020.
7. P. Chetti and H. Ali, "Estimating the Inspection Frequencies of Civil Infrastructures using Correlation Networks and Population Analysis," International Journal on Advances in Intelligent Systems, Volume 13, June 2020.
8. S. Kim, I. Thapa, L. Zhang and H. Ali, "A novel graph theoretical approach for modeling microbiomes and inferring microbial ecological relationships," BMC Genomics, Volume 20, Article 945, December 2019.
9. S. West, S. Kumar, S, Batra, H Ali & D. Ghersi, "Uncovering and characterizing splice variants associated with survival in lung cancer patients," PLoS Computational Biology 15 (10): e1007469. bioRxiv, 623876, October 2019.
10. G. Skar, M. Beaver, A. Aldrich, D. Lagundzin, I Thapa, N. Woods, H. Ali, J. Snowden, and T. Kielian, "Identification of Potential Cerebrospinal Fluid Biomarkers To Discriminate between Infection and Sterile Inflammation in a Rat Model of Staphylococcus epidermidis Catheter Infection," Journal of Infection and Immunity, Vol 87, No 9, September 2019.
11. K. Cooper, W. Hassan and H. Ali, "Identification of temporal network changes in short-course gene expression from C. elegans reveals structural volatility," International Journal of Computational Biology and Drug Design (IJCBDD), Vol 12, No 2, 10.1504/ijcbdd.2019.099760, August 2019.

Selected Recent Conference Papers

1. Z. Hatami, P. Chetti, H, Ali and D. Volkman, "A Novel Population Analysis Approach for Analyzing Financial Markets under Crises – 2008 Economic crash and Covid-19 pandemic," Proceedings of the 55th Hawaii International Conference on System Sciences (HICSS-52), Hawaii, January 2022.
2. W. Gasper, K. Cooper, N. Cornelius, and H. Ali, "Parallel Planar Approximation for Large Networks," The International Workshop on High Performance Bioinformatics and Biomedicine, (HiBB-2021), held in conjunction with the IEEE International Conference on Bioinformatics and Biomedicine (BIBM 2021), Houston, Texas, December 2021.

3. R. K. Thelagathoti and H. Ali, “On Exploring the Use of Mobility Parameters in the Analysis of Early Childhood Developmental Disorders,” Proceedings of IARIA Fifteenth International Conference on Sensor Technologies and Applications (Sensorcomm 2021), Athens, Greece, November 2021.
4. R. K. Thelagathoti and H. Ali, “The Comparison of various Correlation network models in studying Mobility data for the analysis of Depression episodes,” Proceedings of the 14th International Conference on Bio-Inspired Systems and Signals Processing (Biosignals 2021), Virtual Conference, February 2021.
5. S. Kim, I. Thapa, F. Samadi, and H. Ali, “Computational Approaches for Drug Design: A Focus on Drug Repurposing,” The Eighth International Work-Conference on Bioinformatics and Biomedical Engineering (IWBBIO 2020), Granada, Spain, September 2020.
6. E. Rastegari, D. Orn and H. Ali, “Smart Computational Approaches with Advanced Feature Selection Algorithms for Optimizing the Classification of Mobility Data in Health Informatics,” Proceedings of the 8th ACM International Conference on Bioinformatics, Computational Biology, and Health Informatics (ACM-BCB 2020), Atlanta, August 2020.
7. Y. Haddad and H. Ali, “A Dynamic Approach for Managing Heterogeneous Wireless Networks in Smart Environments,” Proceedings of the 25th IEEE Symposium on Computers and Communications (ISCC), Rennes, France, July 2020.
8. K. Cooper, N. Cornelius, W. Gasper, S. Bhowmick, and H. Ali, “On the Planarity of Validated Complexes of Model Organisms in Protein-Protein Interaction Networks,” Proceedings of the International Conference on Computational Science (ICCS), Amsterdam, Holland, June 2020.
9. I. Thapa and H. Ali, “A New Graph Database System for Multi-omics Data Integration and Mining Complex Biological Information,” The Ninth International Conference on Computational Advances in Bio and medical Sciences (ICCABS 2019), Miami, Florida, November 2019.
10. Q. Li, D. Ghersi, I. Thapa, L. Zhang, H. Ali, and K. Cooper, “Identifying Structural Changes in Correlation Networks Models of Cancer Gene Expression by Stage,” Proceedings of the 9th Int Workshop on Biological Network Analysis and Integrative Graph-Based Approaches (IWBNA), with the IEEE BIBM 2019, San Diego, California, November 2019.
11. P. Chetti and H. Ali, “Analyzing the Structural Health of Civil Infrastructures Using Correlation Networks and Population Analysis,” Proceedings of IARIA Eighth International Conference on Data Analytics (Data Analytics 2019), Porto, Portugal, September 2019.
12. E. Rastegari and H. Ali, “A bag-of-words feature engineering approach for assessing health conditions using accelerometer data,” Proceedings of the IEEE/ACM 4th International Conf on Connected Health: Applications, Systems and Engineering Technologies (CHASE 2019), Washington D.C., September 2019.
13. S. Kim, I. Thapa, L. Zhang, and H. Ali, “On Identifying Candidates for Drug Repurposing for the Treatment of Ulcerative Colitis using Gene Expression Data,” The Seventh International Work-Conf on Bioinformatics and Biomedical Engineering (IWBBIO 2019), Granada, Spain, May 2019.
14. E. Rastegari, S. Azizian and H. Ali, “Machine Learning and Similarity Network Approaches to Support Automatic Classification of Parkinson’s Diseases Using Accelerometer-based Gait Analysis,” Proceedings of the 52th Hawaii International Conference on System Sciences (HICSS-52), Hawaii, January 2019.
15. S. Kim, I. Thapa, H. Ali, “A Graph-Theoretic Approach for Identifying Bacterial Inter-correlations and Functional Pathways in Microbiome Data,” in Proceedings of the IEEE International Conference on Bioinformatics and Biomedicine (BIBM 2018), Madrid, Spain, December 2018.
16. A. Patolla, I. Youn and H. Ali, “Robust Network Models for using Mobility Parameters for Health Assessment,” IARIA Eleventh International Conference on Sensor Technologies and Applications (Sensorcomm 2017), Rome, Italy, September 2017.

Selected IARIA Keynote Talks, Panels, and Tutorials

- **"**Mobility and Health: Can we use Mobility Data to Accurately Monitor Health Levels and Predict Potential Health Problems?" Keynote talk presented at the IARIA Fifteenth International Conference on Sensor Technologies and Applications (Sensorcomm 2021), Athens, Greece, November 2021.
- "Innovative Population Based Approaches for Analyzing Mobility Data in Continuous Health Monitoring Applications," Keynote talk presented at IARIA NexTech 2019, Porto, Portugal, Sep 2019.
- "Panel on Advances in Data Processing in Biomedical Informatics," A Panel presented at IARIA Eighth International Conference on Global Health Challenges, Porto, Portugal, September 2019.
- "Wireless Sensors and Data Analytics: A Focus on Health Monitoring and Civil Infrastructures," A Tutorial presented at the IARIA Eleventh International Conference on Sensor Technologies and Applications (Sensorcomm 2017), Rome, Italy, September 2017.
- "High Performance Computing in Biomedical Informatics," A tutorial presented at the IARIA Sixth International Conference on Bioinformatics, Bio-computational Systems and Biotechnologies (BIOTECHNO 2014), Chamonix, France, April 2014.
- "Data Analysis and Integration Tools in Biomedical Informatics: A Case Study in Aging Research," A tutorial presented at the IARIA Sixth International Conference on Bioinformatics, Bio-computational Systems and Biotechnologies (BIOTECHNO 2013), Lisbon, March 2013.