SYED HASIB AKHTER FARUQUI

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EDUCATION

NORTHWESTERN UNIVERSITY, CHICAGO, IL, USA
Post-Doctoral Research Associate/ Clinical Research Associate
Department of Radiology (Feinberg School of Medicine)
January (Spring), 2022 - Present
Advisor: Dr. Donald R. Cantrell

UNIVERSITY OF TEXAS AT SAN ANTONIO (UTSA), TEXAS, USA
Ph.D. in Mechanical Engineering
Spring, 2017- Fall, 2021
Advisor: Dr. Adel Alaeddini

UNIVERSITY OF TEXAS AT SAN ANTONIO (UTSA), TEXAS, USA
M.Sc. in Mechanical Engineering
Fall, 2015 - Fall, 2016
Advisor: Dr. Adel Alaeddini

KHULNA UNIVERSITY OF ENGINEERING & TECHNOLOGY (KUET),
KHULNA, BANGLADESH
B.Sc. in Mechanical Engineering
2009-2013

PUBLISHED MANUSCRIPTS

1. Yan Du, Jing Wang, Shiyu Li, Brittany Dennis, Christiane Meireles, Nazishi Siddiqui, Darpan Patel, John Gelfond, Chengdong Li, **Syed Hasib Akhter Faruqui**, Adel Alaeddini, Viktor Drel, Jana Tumova, Hongping Ye, Richard Montellano, Gustavo Armaiz Pena, Kumar Sharma, "A Technology Assisted Precision Ketogenic Diet Intervention for Cardio-Renal-Metabolic Health in Overweight or Obese Adults: Protocol for a Randomized Controlled Trial", Contemporary Clinical Trials, 2022, 106845, ISSN 1551-7144.

2. Kiran Bhaganagar, Prasanna Kolar, Stanford Martinez, Daniel Brun, **Syed Hasib Akhter Faruqui**, Diganta Bhattacharjee, Adel Alaeddini and Kamesh Subbarao, "A Novel Machine-Learning Framework with a Moving Platform for Maritime Drift Calculations", Frontiers in Marine Science, section Ocean Observation, Mar. Sci 9 (2022): 831501.

3. Yingyan Zeng, Parshin Shojaee, **Syed Hasib Akhter Faruqui**, Stanford Martinez, Adel Alaeddini, Ran Jin, "Contextual Bandit Guided Data Farming for Deep Neural Networks in Manufacturing Industrial Internet", 2022 IEEE 5th International Conference on Industrial Cyber-Physical Systems (ICPS), 2022, pp. 1-6.

4. **Syed Hasib Akhter Faruqui**, Adel Alaeddini, Jing Wang, Susan P. Fisher-Hoch, and Joseph B. Mccormick. "Dynamic Functional Continuous Time Bayesian Networks for Prediction and Monitoring of the Impact of Patients' Modifiable Lifestyle Behaviors on the Emergence of Multiple Chronic Conditions" in IEEE Access, vol. 9, pp. 169092-169106, 2021.

5. **Syed Hasib Akhter Faruqui**, Adel Alaeddini, Jing Wang, Susan P. Fisher-Hoch, and Joseph B. Mccormick. "A Functional Model for Structure Learning and Parameter Estimation in Continuous Time Bayesian Network: An Application in Identifying Patterns of Multiple Chronic Conditions," in IEEE Access, vol. 9, pp. 148076-148089, 2021.

6. **Syed Hasib Akhter Faruqui**, Adel Alaeddini, Mike C. Chang, Sara Shirinkam, Carlos Jaramillo, Peyman NajafiRad, Jing Wang, and Mary Jo Pugh. "Summarizing Complex Graphical Models of Multiple Chronic Conditions Using the Second Eigenvalue of Graph Laplacian: Algorithm Development and Validation." JMIR Medical Informatics 8, no. 6 (2020): e16372.

7. **Syed Hasib Akhter Faruqui**, Yan Du, Rajitha Meka, Adel Alaeddini, Chengdong Li, Sara Shirinkam, Jing Wang, "Development of a Deep Learning Model for Dynamic Forecasting of Blood Glucose Level for Type 2 Diabetes Mellitus: Secondary Analysis of a Randomized Controlled Trial." JMIR Mhealth Uhealth 2019;7(11): e14452.

8. Adel Alaeddini, Jonathan E. Helm, Pengyi Shi, and **Syed Hasib Akhter Faruqui**. "An integrated framework for reducing hospital readmissions using risk trajectories

characterization and discharge timing optimization." IISE Transactions on Healthcare Systems Engineering (2019): 1-14.

9. **Syed Hasib Akhter Faruqui**, Adel Alaeddini, Carlos A. Jaramillo, Jennifer S. Potter, and Mary Jo Pugh. "Mining patterns of comorbidity evolution in patients with multiple chronic conditions using unsupervised multi-level temporal Bayesian network." PloS one 13, no. 7 (2018): e0199768.

10. Adel Alaeddini, Abed Motasemi, and **Syed Hasib Akhter Faruqui**. "A spatiotemporal outlier detection method based on partial least squares discriminant analysis and area Delaunay triangulation for image-based process monitoring." IISE Transactions 50, no. 2 (2018): 74-87.

11. Adel Alaeddini, Carlos A. Jaramillo, **Syed Hasib Akhter Faruqui**, and Mary J. Pugh. "Mining Major Transitions of Chronic Conditions in Patients with Multiple Chronic Conditions." Methods of information in medicine 56, no. 05 (2017): 391-400.

ACCEPTED CONFERENCE ABSTRACTS	1. Abhinav Patel, Ramez N Abdalla, Chaochao Zhou, **Syed Hasib Akhter Faruqui**, J Moore, Matthew B Potts, Babak S Jahromi, V Rayz, M Markl, T Carroll, Donald R Cantrell, Sameer A Ansari, Early vs Delayed Change in Aneurysm Wall Enhancement and intracranial Structures on High Resolution MR Vessel Wall Imaging (**ASNR Annual Conference 2023**).

1. Abhinav Patel, Ramez N Abdalla, Chaochao Zhou, **Syed Hasib Akhter Faruqui**, J Moore, Matthew B Potts, Babak S Jahromi, V Rayz, M Markl, T Carroll, Donald R Cantrell, Sameer A Ansari, Early vs Delayed Change in Aneurysm Wall Enhancement and intracranial Structures on High Resolution MR Vessel Wall Imaging (**ASNR Annual Conference 2023**).

2. Abhinav Patel, **Syed Hasib Akhter Faruqui,** Ramez N Abdalla, A Malik, Chaochao Zhou, J Moore, Babak S Jahromi, Matthew B Potts, A Shaibani, V Rayz, M Markl, T Carroll, Donald R Cantrell, Sameer A Ansari, Correlation of Quantified Aneurysm Wall Enhancement MR-VWI with ELAPSS Score for Evaluation of Unruptured intracranial Aneurysms (**ASNR Annual Conference 2023**).

3. **Syed Hasib Akhter Faruqui**, Abhinav Patel, Chaochao Zhou, Ramez N Abdalla, Matthew B Potts, Babak S Jahromi, V Rayz, M Markl, T Carroll, A Shaibani, Sameer A Ansari, Donald R Cantrell, Identifying Predictors of Intracraniel Aneurysm Wall Enhancement and Associated Rupture Risk using Bayesian Network Analysis (**ASNR Annual Conference 2023**).

4. **Syed Hasib Akhter Faruqui** Chaochao Zhou, Abhinav Patel, Ramez N Abdalla, Matthew B Potts, A Shaibani, Sameer A Ansari, Donald R Cantrell, Transparent Arterial Layer Separation in Cardiac Angiography with Self-Supervised Deep Learning (**IISE Annual Conference 2023**).

5. **Syed Hasib Akhter Faruqui**, Stanford Martinez, Carolina Ramirez-Tamayo, Kal L. Clark, Adel Alaeddini, **TracGeneity**: **Trac**king Homo**geneity** in Gaze Search Patterns using Contrastive Learning in Scanning Chest X-rays (**IISE Annual Conference 2023**).

6. Julian Carvajal Rico, **Syed Hasib Akhter Faruqui**, Adel Alaeddini, **"**A Generative Model for Improving Graph Structure and Representation from Electronic Health Records" (**IISE Annual Conference 2023**).

7. Carolina Ramirez-Tamayo, **Syed Hasib Akhter Faruqui,** Stanford Martinez, Kal L. Clark, Adel Alaeddini, Nicholas Czarnek, Aarushi Aggarwal, Sahra Emamzadeh, Jeffrey R. Mock, Edward J. Golob, "A Feedback-Driven Educational Framework to Characterize and Improve Radiologists Search Patterns of Chest X-rays" (**IISE Annual Conference 2023**).

MANUSCRIPTS UNDER REVIEW	1. Mike C. Chang, **Syed Hasib Akhter Faruqui**, Hung-da Wan, Adel Alaeddini, "Learning during COVID-19: A Lean Six-sigma Study for Improving Student Learning Experience" (Submitted for review in *International Journal of Mechanical Engineering Education*)

1. Mike C. Chang, **Syed Hasib Akhter Faruqui**, Hung-da Wan, Adel Alaeddini, "Learning during COVID-19: A Lean Six-sigma Study for Improving Student Learning Experience" (Submitted for review in *International Journal of Mechanical Engineering Education*)

2. **Syed Hasib Akhter Faruqui**, Adel Alaeddini, Jing Wang, Susan P. Fisher-Hoch, and Joseph B. Mccormick, "A Model predictive control for self-monitoring and management for patients with Multiple Chronic Conditions based on Patient Lifestyle Behavioral Change" (Submitted for review in *Artificial Intelligence in Medicine*).

3. Stanford Martinez, Carolina Ramirez-Tamayo, **Syed Hasib Akhter Faruqui**, Kal L. Clark, Adel Alaeddini, Nicholas Czarnek, Aarushi Aggarwal, Sahra Emamzadeh, Jeffrey R. Mock, Edward J. Golob, "Identifying the Experience Level of Radiologists Utilizing Eye-Tracking Technology and Machine Learning" (Submitted for review in *JQT (Applications)*).

1. **Syed Hasib Akhter Faruqui**, Donald R. Cantrell, Sameer A Ansari, Leon Cho, "Separating Artery Layers in Low-Latency Cardiac MRIs for Generating Data to Train Deep Segmentation Networks"
2. **Syed Hasib Akhter Faruqui**, Shiyu Li, Yan Du, Adel Alaeddini, Jing Wang, "An Expert-in-the-Loop Control Methodology Utilizing Transfer-Learned Predictive Twin to Assist Patients with Type 2 Diabetes Mellitus (T2DM) in a Live Clinical Trial: A Proof of Concept."
3. **Syed Hasib Akhter Faruqui**, Stanford Martinez, Carolina Ramirez-Tamayo, Kal L. Clark, Adel Alaeddini, Trac-Geneity: **Trac**king Homo**geneity** in Gaze Search Patterns using One-shot Contrastive Learning in Scanning Chest X-rays.
4. Carolina Ramirez-Tamayo, **Syed Hasib Akhter Faruqui,** Stanford Martinez, Kal L. Clark, Adel Alaeddini, Nicholas Czarnek, Aarushi Aggarwal, Sahra Emamzadeh, Jeffrey R. Mock, Edward J. Golob, "Improving Quality of Chest X-ray Scanning Through a Continuous Machine Learning Approach: An Educational Framework".

1. **Syed Hasib Akhter Faruqui**, Shiyu Li, Yan Du, Brittany Dennis, Chengdong Li, Jing Wang, Adel Alaeddini, "Utilizing Digital Twins to Develop Semi-supervised online Control Model for Self-monitoring and Management of Patients with Type 2 Diabetes Mellitus" INFORMS Annual Meeting, Indianapolis, Indiana (2022).
2. Stanford Martinez, Carolina Ramirez-Tamayo, **Syed Hasib Akhter Faruqui**, Kal L. Clark, Adel Alaeddini, Nicholas Czarnek, Aarushi Aggarwal, Sahra Emamzadeh, Jeffrey R. Mock, Edward J. Golob, "Identifying the Experience Level of Radiologists Utilizing Eye-Tracking Technology and Machine Learning". IISE Annual Conference 2022.
3. **Syed Hasib Akhter Faruqui**, Adel Alaeddini, Jing Wang, "A Dynamic Model predictive control for self-monitoring and management for patients with Multiple Chronic Conditions based on Patient Lifestyle Behavioral Change", INFORMS Annual Meeting, Anaheim, California (2021).
4. **Syed Hasib Akhter Faruqui**, Hamed Bouzary, Soriful Alam, Adel Alaeddini, F. Frank Chen, "3D Object Detection for Streamlining Production Processes in a Cloud Manufacturing Infrastructure", IISE Annual Conference (Virtual) 2021.
5. **Syed Hasib Akhter Faruqui**, Adel Alaeddini, Jing Wang, "Utilizing Digital Twins to Develop Unsupervised Control Model for Self-monitoring And Management of Type 2 Diabetes Mellitus", INFORMS Annual (Virtual) 2020.
6. **Syed Hasib Akhter Faruqui**, Adel Alaeddini, Jing Wang, "An Extended Kalman Filter for Dynamic Prediction and Detection of Risk of Multiple Chronic Conditions Based on Patient Lifestyle Behavioral Changes", INFORMS Annual (Virtual) 2020.
7. **Syed Hasib Akhter Faruqui**, Rajitha Meka, Adel Alaeddini, Jing Wang, "A Reinforcement Learning Framework for Behavioral Management of Type-2-Diabetes-Mellitus Patients", IISE Annual Conference (Virtual) 2020.
8. **Syed Hasib Akhter Faruqui**, Adel Alaeddini, Carlos A. Jaramillo, Mary Jo Pugh, "An Active Learning Framework for Learning and Summarizing Healthcare Networks", IISE Annual Conference, Orlando, Fl (2019).
9. **Syed Hasib Akhter Faruqui**, Rajitha Meka, Adel Alaeddini, Jing Wang, "Dynamic Forecasting and Control of Diabetes Using Mobile-Based Health-Lifestyle Data", IISE Annual Conference, Orlando, Fl (2019).
10. **Syed Hasib Akhter Faruqui**, Adel Alaeddini, Carlos A. Jaramillo, Mary Jo Pugh, "A Continuous Time Bayesian Network Model for Identifying Patterns of Multiple Chronic Conditions", INFORMS Annual Meeting, Phoenix, Az (2018).
11. **Syed Hasib Akhter Faruqui**, Adel Alaeddini, Carlos A. Jaramillo, Mary Jo Pugh, A "Continuous Time Bayesian Network for Learning the Evolution of Multiple Chronic Conditions"**,** The Fourth Annual San Antonio Military Health System and Universities Research Forum (SURF), San Antonio, Tx (2018).
12. **Syed Hasib Akhter Faruqui,** Adel Alaeddini, Carlos A. Jaramillo, Mary Jo Pugh, "Learning the Evolution of Multiple Chronic Conditions using Bayesian Networks", IISE Annual Conference, Orlando, Fl (2018).
13. **Syed Hasib Akhter Faruqui**, Adel Alaeddini, Carlos A. Jaramillo, Mary Jo Pugh, Sara Shirinkam, "Eigen Analysis of Graph Laplacian for Summarizing Bayesian Networks", IISE Annual Conference, Orlando, Fl (2018).
14. **Syed Hasib Akhter Faruqui,** Adel Alaeddini, Carlos A. Jaramillo, Mary Jo Pugh, "Analyzing Patterns of Multiple Chronic Conditions and their Associated Behavior in

Temporal Direction using Multi-level Temporal Bayesian Network", INFORMS Annual Meeting, Houston, Tx (2017).

15. **Syed Hasib Akhter Faruqui**, Adel Alaeddini, Carlos A. Jaramillo, Mary Jo Pugh, "Temporal Abstraction of Multiple Chronic Conditions Using Hierarchical Multi-Level Temporal Bayesian Network", IISE Annual Conference, Pittsburgh, PA (2017).

POSTER PRESENTATION

1. Chaochao Zhou, **Syed Hasib Akhter Faruqui**, Abhinav Patel, Ramez N Abdalla, Ali Shaibani, Matthew B Potts, Babak S Jahromi, Sameer A Ansari, Donald R Cantrell, "Prediction of Stroke Thrombectomy Outcomes from The Neurovascular Quality Initiative-quality Outcomes Database (NVQI-QOD) Registry Using Probabilistic Learning Models", International Stroke Conference 2023, Stroke 54, no. Suppl_1 (2023): AWP94-AWP94.

2. Stanford Martinez, Carolina Ramirez-Tamayo, **Syed Hasib Akhter Faruqui**, Kal L. Clark, Adel Alaeddini, Nicholas Czarnek, Aarushi Aggarwal, Sahra Emamzadeh, Jeffrey R. Mock, Edward J. Golob, "Identifying the Experience Level of Radiologists Utilizing Eye-Tracking Technology and Machine Learning". CAMLS session 2021, UTSA.

3. **Syed Hasib Akhter Faruqui,** Adel Alaeddini, Jing Wang, Susan P. Fisher-Hoch, and Joseph B. Mccormick. "Nonlinear State Space Modeling and Control of the Impact of Patient's Modifiable Lifestyle Behaviours on the Emergence of Multiple Chronic Conditions", IISE Annual Conference (Virtual) 2021. (***Runner-Up, IISE QCRE & DAIS Track Best Student Poster Award***).

4. Chi Wen Chang, Stanford Martinez, **Syed Hasib Akhter Faruqui**, Adel Alaeddini,"A Zone Based Indoor RFID System for Real-Time Personnel Location Tracking", IISE Annual Conference (Virtual) 2020.

5. **Syed Hasib Akhter Faruqui**, Adel Alaeddini, Carlos Jaramillo, & Mary Jo Pugh, "A Functional Model for Structure Learning and Parameter Estimation in Continuous Time Bayesian Network: An Application in Identifying Patterns of Multiple Chronic Conditions", INFORMS Annual Conference, Seattle, WA (2019).

6. **Syed Hasib Akhter Faruqui**, Adel Alaeddini, Chi-Wen Chang, Sara Shirinkam & Carlos Jaramillo, Learning and Summarizing Graphical Models using Eigen Analysis of Graph Laplacian: An Application in Analysis of Multiple Chronic Conditions", IISE Annual Conference, Orlando, Fl (2019).

7. Adel Alaeddini**, Syed Hasib Akhter Faruqui,** Jing Wang, "Using Machine Learning Methods for Dynamic Forecasting and Control of Type 2 Diabetes Using Mobile-Based Health Lifestyle Data".

RESEARCH PROJECTS

1. Developing a Data-Driven Technology towards improved Leeway Divergence Prediction (US Coastal Guard: March 2020 – May 2021)

2. Alignment and Analysis of Off-shore Oil and Gas Rig Sensor Data (Company: Schlumberger: March 2020 – December 2020).

3. A Novel Probabilistic Methodology for Prediction of Emerging Diseases in Patients with Multiple Chronic Conditions (National Institute of Health, Project Number: 1SC2GM118266-01).

4. Predicting and Explaining Workplace Safety Incidents using Data Mining Techniques (Andeavor: 07/07/2018 – 12/30/2018).

CLASS PROJECTS

1. Improving Process Efficiency through Value Stream Mapping: A Case Study of an Insight Driven, Multi-Channel Advertising Mass Distributor (Velasis: 09/05/2017 – 12/07/2017).

2. Optimization of Wind Turbine Disturbance Using Design of Experiments Methodology.

3. Project Management: Scheduling Expedited Time-Cost using Linear Programming.

THESIS

1. Learning and Summarization of Complex and Large Datasets with Graphical Models: An Application in Healthcare Data Analytics (Ph.D. Thesis)

2. A Temporal Bayesian Network for Modeling the Temporal Relation Among Multiple Chronic Conditions (M.Sc. Thesis).

3. Numerical Investigation of Aerodynamic Characteristics for Flow Over a Car. (Undergraduate Thesis).

ACADEMIC EXPERIENCE	**Graduate Research Assistant**

Graduate Research Assistant
The University of Texas at San Antonio, San Antonio, Texas-78249
Jan 2016 – December 2021
Research Advisor: Dr. Adel Alaeddini

Graduate Teaching Assistant
The University of Texas at San Antonio, San Antonio, Texas-78249
Period:
a) Spring 2017: ME1403: Engineering Practice and Graphics
   Course Material:https://www.shafnehal.com/courses/spring_2017/lecture_notes
b) Fall 2017: ME1403: Engineering Practice and Graphics
   Course Material: https://www.shafnehal.com/courses/fall_2017/lecture_notes
c) Spring 2018: ME1403: Engineering Practice and Graphics
   Course Material: https://www.shafnehal.com/courses/spring_2018/lecture_notes
d) Fall 2018: ME1403: Engineering Practice and Graphics
   Course Material: https://www.shafnehal.com/courses/fall_2018/lecture_notes
e) Fall 2019: ME 6543: Machine Learning & Data Analytics
   Course Material:http://www.shafnehal.com/courses/fall_2019/lecture_notes
f) Spring 2020: ME 3241: Materials Engineering Lab
g) Fall 2020: ME 6543: Machine Learning & Data Analytics (Online)
h) Spring 2021: ME 6973: SP: Introduction to Deep Learning
i) Fall 2021: ME 6543: Machine Learning & Data Analytics (Online)

JOB EXPERIENCE

Maks Inc
Research Engineer
August 2nd, 2014, to July 15th, 2015

Tasks Performed:
1. Reviewed and created draft drawings according to need.
2. Created draft designs according to need.
3. Estimated product order based on design, BOM, etc.
4. Estimated FAF provisional for a port to port/ state to state supply of waterborne.
5. Estimated FAF provisional for a port to the port/ state to state supply of pipeline products.

BFP Engineers Ltd.
Assistant Design Engineer
February 16th, 2014, to May 31st, 2014

Tasks Performed:
1. Created turbine blade profiles from 3D scanned used blades for analyzing corrosion due to excessive use and saltation to take mitigating measures.
2. Drafting pipeline plans of a chemical plant.
3. Mapped and drafted new pipeline routes for existing plants.

AWARDS & SCHOLARSHIPS
1. UTSA Graduate School (Klesse College of Engineering and Integrated Design) Outstanding Ph.D. Dissertation Award, 2022
2. UTSA Graduate Student Professional Development Award, 2017 - 2020
3. Outstanding Graduate Student (College of Engineering), UTSA Annual University Life Awards, 2020
4. Dhaka (Bangladesh) Board Education Scholarship, 2009 – 2013

SKILLS & ABILITIES
Database Languages: SQL
Programming Language: MATLAB, Python, R, FORTRAN
CAD Software: AutoCAD, Autodesk Inventor, Inventor Fusion, Solidworks, PDMS
Simulation Software: ANSYS, Fluent, Gambit (Meshing), AMPL, Minitab

SERVICE ACTIVITIES
1. **Co-session Chair**:
   QCRE Invited Track: Disease Predictive Modeling and Control, IISE Annual Conference 2019, Orlando, FL (2019)

2. **Journal Referee and Review Experience**:
   a. IIE Transactions on Healthcare Systems Engineering (Since 2018)
   b. PlosOne (Since 2018)
   c. Addictive Behaviors, Elsevier (Since 2020)
   d. Journal of Applied Statistics (Since 2020)
   e. JMIR (and its sister journals) (Since 2021)
   f. IEEE Transactions on Pattern Analysis and Machine Intelligence (Since 2022)
   g. Frontiers in Public Health (Since 2022)

3. **Workshop**:
   a. UTSA COE/CACP Workshop: Advanced SolidWorks ([Materials](#)) (Spring 2021)
   b. UTSA COE/CACP Workshop: SolidWorks ([Material](#)) (Spring 2022)

MEMBERSHIPS
1. Institute of Industrial & Systems Engineers (**IISE**)
2. Institute for Operations Research and the Management Sciences (**INFORMS**)

CERTIFICATION Lean Six Sigma Green Belt (Certificate No. *2018-04-23-041*)