

## Murtaza Nasir

Assistant Professor – Decision Science

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W. Frank Barton School of Business, Wichita State University

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### I. Education

#### PhD – Management Science

2022

Manning School of Business, University of Massachusetts Lowell

Lowell, MA

**Dissertation Title:** Essays on Data Science & Analytics: Methodology Development and Applications

**Dissertation Co-Chairs:** Nichalin Summerfield & Asil Oztekin

#### Master of Business Administration – Business Analytics Concentration

December 2018

Beacom School of Business, University of South Dakota

Vermillion, SD

#### Bachelor of Science – Engineering

2009

Ghulam Ishaq Khan Institute of Engineering Sciences and Technology

Topi, Pakistan

### II. Research & Publications

#### *Refereed Journal Articles*

- **Nasir, Murtaza;** Dag, Ali; Simsek, Serhat; Ivanov, Anton & Oztekin, Asil, “Synthetic Average Neighborhood Sampling Algorithm (SANSA): A Neighborhood Informed Synthetic Sample Placement Approach to Improve Learning from Imbalanced Data”, *Journal of Management Information Systems* 39.4: 1116-1145 (2022).
- Sheikh, Shaya; Rabiee, Meysam; **Nasir, Murtaza;** Oztekin, Asil, “An Integrated Decision Support System for Multi-Target Forecasting: A Case Study of Energy Load Prediction for a Solar-Powered Residential House.” *Computers & Industrial Engineering* (2022).
- **Nasir, Murtaza;** Simsek, Serhat; Cornelsen, Erin; Ragothaman, Srinivasan; & Dag, Ali. "Developing a decision support system to detect material weaknesses in internal control." *Decision Support Systems* (2021).
- **Nasir, Murtaza,** Summerfield, Nichalin; Simsek, Serhat; & Oztekin, Asil, "Machine learning-based outcome prediction and novel hypotheses generation for substance use disorder treatment." *Journal of the American Medical Informatics Association* (2021).

- **Nasir, Murtaza;** Summerfield, Nichalin; Dag, Ali & Oztekin, Asil, "A service analytic approach to studying patient no-shows" *Service Business* 14, 287–313 (2020).
- **Nasir, Murtaza;** Dag, Ali; Young, William & Delen, Dursun, "Determining Optimal Skillsets for Business Managers Based on Local and Global Job Markets: A Text Analytics Approach", *Decision Sciences Journal of Innovative Education* 18 (3), 374-408 (2020).
- **Nasir, Murtaza;** South-Winter, Carole; Ragothaman, Srinivasan & Dag, Ali, "A comparative data analytic approach to construct a risk trade-off for cardiac patients' re-admissions", *Industrial Management and Data Systems* 119 (1), 189-209 (2019).

### ***Refereed Journal Articles Submitted***

- **Nasir, Murtaza;** Oztekin, Asil; Summerfield, Nichalin; Carreiro, Stephanie & Berlowitz, Dan, "COVID-19 Diagnostic and Prognostic Predictions, Key Risk-Factors & Interactions – A Machine Learning Approach", *Journal of Business Analytics* (under 1<sup>st</sup> review).

### ***Working Papers***

- Ivanov, Anton; **Nasir, Murtaza;** Simsek, Serhat; Dag, Ali, "Understanding Online Health Community Effects on Opioid Use Disorder Treatment using NLP and Agent-Based Modelling".
- **Nasir, Murtaza;** Feldeisen, Sabrina; Mangano, Kelsey; Tucker, Katherine; Oztekin, Asil, "Finding Common Factors & Novel Interactions for Multiple Health Outcomes using Machine Learning".
- **Nasir, Murtaza;** Summerfield, Nichalin; Simsek, Serhat & Oztekin, Asil, "Simple Interaction Finding Technique (SIFT): A Novel Hypothesis Generation Methodology with Machine Learning".

### ***Academic Conference Proceedings & Presentations***

- **Nasir, Murtaza;** Summerfield, Nichalin; Simsek, Serhat & Oztekin, Asil, "Simple Interaction Finding Technique (SIFT): A Novel Hypothesis Generation Methodology with Machine Learning", *Presentation in the Regional Best Paper Competition Session, DSI 52<sup>nd</sup> Annual Meeting*, online, Nov. 18<sup>th</sup> 2021.
- **Nasir, Murtaza;** Summerfield, Nichalin; Simsek, Serhat & Oztekin, Asil, "Simple Interaction Finding Technique (SIFT): A Novel Hypothesis Generation Methodology with Machine Learning", *Presentation at the 16<sup>th</sup> INFORMS Annual Meeting*, Anaheim, CA., Oct. 22<sup>nd</sup> - Oct 27<sup>th</sup> 2021.

- **Nasir, Murtaza;** Summerfield, Nichalin; Simsek, Serhat & Oztekin, Asil, “Simple Interaction Finding Technique (SIFT): A Novel Hypothesis Generation Methodology with Machine Learning”, *Presentation at the 50<sup>th</sup> NEDSI Annual Conference*, Cambridge, MA., Mar. 26<sup>th</sup>- Mar 28<sup>th</sup> 2021.
- **Nasir, Murtaza,** Dag, Ali; Simsek, Serhat & Oztekin, Asil, “Synthetic Average Neighborhood Sampling Algorithm (SANSA): A Neighborhood Informed Synthetic Sample Placement Approach to Improve Learning from Imbalanced Data”, *Presentation in the Rule & Analytics Design Session, DSI 51<sup>st</sup> Annual Meeting*, online, Nov. 23<sup>rd</sup> 2020.
- **Nasir, Murtaza;** Summerfield, Nichalin; Oztekin, Asil; Knight, Margaret & Ackerson, Leland, “Machine Learning Based Outcome Prediction & Hypothesis Generation for Substance Use Disorder Treatment”, *Presentation in the Data Analytics in Healthcare Session, DSI 51<sup>st</sup> Annual Meeting*, online, Nov. 21<sup>st</sup> 2020.
- **Nasir, Murtaza,** Dag, Ali; Simsek, Serhat & Oztekin, Asil, “Synthetic Average Neighborhood Sampling Algorithm (SANSA): A Neighborhood Informed Synthetic Sample Placement Approach to Improve Learning from Imbalanced Data”, *Presentation in the Anomaly Detection/Data Reliability Session, INFORMS Annual Meeting*, online, Nov. 7<sup>th</sup> 2020.
- **Nasir, Murtaza;** Summerfield, Nichalin; Oztekin, Asil; Knight, Margaret & Ackerson, Leland, “Machine Learning Based Outcome Prediction & Hypothesis Generation for Substance Use Disorder Treatment”, *Presentation in the Healthcare Analytics Session, INFORMS Annual Meeting*, online, Nov. 7<sup>th</sup> 2020.
- **Nasir, Murtaza,** Dag, Ali; Simsek, Serhat & Oztekin, Asil, “Synthetic Average Neighborhood Sampling Algorithm (SANSA): A Neighborhood Informed Synthetic Sample Placement Approach to Improve Learning from Imbalanced Data”, *Presentation at the 49<sup>th</sup> NEDSI Annual Conference*, Cambridge, MA., Mar. 26<sup>th</sup>- Mar 28<sup>th</sup> 2020.
- **Nasir, Murtaza;** Summerfield, Nichalin; Oztekin, Asil; Knight, Margaret & Ackerson, Leland, “Machine Learning Based Outcome Prediction & Hypothesis Generation for Substance Use Disorder Treatment”, *Presentation at the 49<sup>th</sup> NEDSI Annual Conference*, Cambridge, MA., Mar. 26<sup>th</sup>- Mar 28<sup>th</sup> 2020.
- **Nasir, Murtaza,** Dag, Ali; Simsek, Serhat & Oztekin, Asil, “Synthetic Average Neighborhood Sampling Algorithm (SANSA): A Neighborhood Informed Synthetic Sample Placement Approach to Improve Learning from Imbalanced Data”, *Presentation at the 14<sup>th</sup> INFORMS Annual Meeting*, Seattle, WA., Oct. 20<sup>th</sup>- Oct 23<sup>rd</sup> 2019.
- **Nasir, Murtaza,** Dag, Ali, Young, William & Delen, Dursun, “Business Analytics in the Managerial Job Market”, *Presentation at the 13<sup>th</sup> INFORMS Annual Meeting Data Mining and Decision Analytics Workshop*, Phoenix, AZ., Nov. 3<sup>rd</sup>- Nov 7<sup>th</sup> 2018.

### III. Awards & Honors

- **Runner up for Best Regional Paper Award at the Decision Sciences Institute (DSI) Conference 2021**  
**Nasir, Murtaza;** Summerfield, Nichalin; Simsek, Serhat & Oztekin, Asil, “Simple Interaction Finding Technique (SIFT): A Novel Hypothesis Generation Methodology with Machine Learning”, *DSI 52<sup>nd</sup> Annual Meeting*, online, Nov. 18<sup>th</sup> 2021.
- **Best Student Paper Award @ Northeast Decision Sciences Institute (NEDSI) 2021 Conference**  
**Nasir, Murtaza;** Summerfield, Nichalin; Simsek, Serhat & Oztekin, Asil, “Simple Interaction Finding Technique (SIFT): A Novel Hypothesis Generation Methodology with Machine Learning”. *Paper submission at the 50<sup>th</sup> NEDSI Annual Conference*, Cambridge, MA., Mar. 26<sup>th</sup>- Mar 28<sup>th</sup> 2021.
- **Best Application of Theory Award @ Northeast Decision Sciences Institute (NEDSI) 2021 Conference**  
**Nasir, Murtaza;** Summerfield, Nichalin; Simsek, Serhat & Oztekin, Asil, “Simple Interaction Finding Technique (SIFT): A Novel Hypothesis Generation Methodology with Machine Learning”. *Paper submission at the 50<sup>th</sup> NEDSI Annual Conference*, Cambridge, MA., Mar. 26<sup>th</sup>- Mar 28<sup>th</sup> 2021.
- **Best Regional Paper Award at the Decision Sciences Institute (DSI) Conference 2020: Nasir, Murtaza,** Summerfield, Nichalin; Simsek, Serhat; & Oztekin, Asil, “Synthetic Average Neighborhood Sampling Algorithm (SANSA): A Neighborhood Informed Synthetic Sample Placement Approach to Improve Learning from Imbalanced Data”, 51<sup>st</sup> Annual (Virtual) DSI Conference, November 21-23, 2020.
- **3<sup>rd</sup> Position in the Best Paper Award at the Data Mining Section @ INFORMS Annual Meeting 2020: Nasir, Murtaza,** Summerfield, Nichalin; Simsek, Serhat; & Oztekin, Asil, “Synthetic Average Neighborhood Sampling Algorithm (SANSA): A Neighborhood Informed Synthetic Sample Placement Approach to Improve Learning from Imbalanced Data”, INFORMS Annual (Virtual) Meeting, November 7<sup>th</sup>, 2020.
- **Two Silver Medals and One Bronze Medal Recipient at the Veterans Health Administration (VHA) Innovation Ecosystem and Food & Drug Administration (FDA) COVID-19 Risk Factor Modeling Challenge:**  
Using machine learning with patient medical history data, achieved the 2<sup>nd</sup> place for predicting COVID-19 deaths, the 3<sup>rd</sup> place for predicting hospitalization stay duration for COVID-19 and the 4<sup>th</sup> place overall to predict five COVID-19 related health outcomes in a competition organized by the FDA & VHA, August 2020.
- **Best Overall Conference Paper Award @ Northeast Decision Sciences Institute (NEDSI) 2020 Conference**

**Nasir, Murtaza**, et al, “Synthetic Average Neighborhood Sampling Algorithm (SANSA): A Neighborhood Informed Synthetic Sample Placement Approach to Improve Learning from Imbalanced Data”, *Paper submission at the 49<sup>th</sup> NEDSI Annual Conference*, Cambridge, MA., Mar. 26<sup>th</sup>- Mar 28<sup>th</sup> 2020.

- **Best Contribution to Theory Award @ Northeast Decision Sciences Institute (NEDSI) 2020 Conference**  
**Nasir, Murtaza**, et al, “Synthetic Average Neighborhood Sampling Algorithm (SANSA): A Neighborhood Informed Synthetic Sample Placement Approach to Improve Learning from Imbalanced Data”, *Paper submission at the 49<sup>th</sup> NEDSI Annual Conference*, Cambridge, MA., Mar. 26<sup>th</sup>- Mar 28<sup>th</sup> 2020.

#### IV. Presentations & Talks

##### *Invited Talks*

- **Bentley University Data Analytics Research Team (DART) Center Meeting**  
Waltham, MA, April 14<sup>th</sup>, 2020  
Machine Learning Based Outcome Prediction & Hypothesis Generation for Substance Use Disorder Treatment
- **Tufts Analytics Without Borders Conference**  
Boston, MA, February 28<sup>th</sup>, 2020  
Synthetic Average Neighborhood Sampling Algorithm (SANSA): A Neighborhood Informed Synthetic Sample Placement Approach to Improve Learning from Imbalanced Data

##### *Campus Talks*

- **UMass Med School, Center for Data Driven Discovery in Healthcare and Center for Clinical & Translational Science**  
Worcester, MA, April 24<sup>th</sup>, 2020  
Machine Learning Based Outcome Prediction & Hypothesis Generation for Substance Use Disorder Treatment
- **UMass Lowell, Department of Public Health**  
Lowell, MA, April 2<sup>nd</sup>, 2020  
Machine Learning Based Outcome Prediction & Hypothesis Generation for Substance Use Disorder Treatment
- **UMass Medical School, Population and Quantitative Health Sciences Meeting**  
Worcester, MA, March 23<sup>rd</sup>, 2020  
Machine Learning Based Outcome Prediction & Hypothesis Generation for Substance Use Disorder Treatment

- **UMass Lowell, Center for Population Health Meeting**  
Lowell, MA, March 17<sup>th</sup>, 2020  
Machine Learning Based Outcome Prediction & Hypothesis Generation for Substance Use Disorder Treatment

## V. Professional Associations

- The Institute for Operations Research and the Management Sciences (INFORMS) – Member
- Decision Sciences Institute (DSI) – Member
- Pakistan Engineering Council (PEC) – Member

## VI. Professional Development

### *Peer Reviews*

- Reviewer for e-Service Journal, 2022
- Reviewer for Journal of the Operational Research Society, 2022
- Reviewer for European Journal of Operations Research, 2021-2022
- Reviewer for Journal of Management Information Systems, 2020-2022
- Reviewer for Annals of Operations Research, 2020-2022
- Reviewer for International Journal of Forecasting, 2021
- Reviewer for Decision Support Systems, 2020-2021
- Reviewer for Management Science, 2020
- Reviewer for Journal of Modelling in Management, 2018-2020

### *Conference Session Chairpersonship*

- Chaired the Healthcare Analytics Session at the 2020 INFORMS Annual Meeting
- Chaired the Healthcare Analytics Session for the DM&DA Workshop at the 2018 INFORMS Annual Meeting
- Chaired the Business Analytics General Session for the DM&DA Workshop at the 2018 INFORMS Annual Meeting

## VII. Other Research Experience

### **B.Sc. Student – Final year project**

Ghulam Ishaq Khan Institute of Engineering Sciences and Technology

**2009**

Topi, Pakistan

Developed a novel silicon solar cell–nano-particle thin-film combination to increase the underlying solar cell’s light conversion efficiency from 11% to 19%

## VIII. Technical Skills

**Computer Languages:** Experienced in R, Python, PHP, SQL, JavaScript, C++, G-CODE

**Software:** MS Office, Linux (CentOS & RHEL), Adobe Photoshop & Illustrator, SolidWorks, CamWorks

## IX. Professional Experience

### Assistant Professor (Decision Science)

*W. Frank Barton School of Business, Wichita State University*

**2022 – present**

Wichita, KS

- **Courses Taught**

- BSAN 775: Intro to Business Analytics, Fall 2022
- BSAN 675: Analytics Modeling with Spreadsheets, Fall 2022

### PhD Candidate

*Manning School of Business, University of Massachusetts Lowell*

**2019 – 2022**

Lowell, MA

- **Courses Taught**

- POMS 3050: Operations Management, Summer 2022
- POMS 4050: Predictive Data Analytics, Spring 2022
- POMS 2010: Intro to Business Analytics, Fall 2021
- POMS 2010: Intro to Business Analytics, Summer 2021
- Served as teaching assistant where duties included grading papers, maintaining grades and student feedback on the online learning management system and invigilation. Classes include:
  - POMS 2010: Intro to Business Analytics, Spring 2021
  - POMS 3010: Operations Management, Spring 2021
  - POMS 4050: Predictive Data Analytics, Spring 2021
  - POMS 6220: Decision Analytics, Fall 2020
  - POMS 2010: Intro to Business Analytics, Fall 2020
  - POMS 2010: Intro to Business Analytics, Spring 2020
  - POMS 3010: Operations Management, Spring 2020
  - POMS 3010: Operations Management, Fall 2019

### Graduate Research Assistant

*Beacom School of Business, University of South Dakota*

**2016 – 2019**

Vermillion, SD

- Worked with the Governor's Office of Economic Development and the SDBCA to help South Dakota scientists and entrepreneurs take their inventions to market
- Provided support and advice to program participants about business planning, operations management, market research and marketing activities
- Managed and advised a group of undergraduate students working with the various participants

### Managing Director

*Aureus Engineering*

**2012 – 2015**

Islamabad, Pakistan

- Created an engineered wood products business that manufactured to order and customized engineered woodwork projects and wall panels
- Gained experience in project management, CNC manufacturing (CAD/CAM design), online and offline marketing (Facebook, Google Adwords), procurement and logistics among many other business aspects

### Research Consultant

*Rastgar Engineering Company*

**2011**

Islamabad, Pakistan

- Increased sales for various company products and services through market penetration and market development strategies
- Led the marketing and sales activities for new product categories like heavy duty articulated trucks and machinery
- Streamlined sales and technical teams work processes leading to more efficient quoting and technical presentations, increasing conversions

### **Manager Operations**

**2009 – 2010**

*Trans Tech Group*

Islamabad, Pakistan

- Part of a two-member team that developed a strategic business plan for the new venture, Trans Food Industries
- Designed and implemented SOPs and FSMS for the factory; led through successful ISO certification audits
- Oversaw factory operations, supply chain and production
- Pitched and negotiated CDM deals with foreign CDM firms, buyers and carbon funds for the groups Solar Energy Projects
- Led a team to implement CRM and ERP solutions for efficient operations across all company offices

## **X. Graduate Courses Taken**

*Manning School of Business, University of Massachusetts Lowell*

**PhD**

- Spring 2021
  - Optimization & Simulation
  - Non-parametric Modelling
  - Predictive Modelling & Causal Analytics
- Fall 2020
  - Econometrics II
  - Machine Learning
  - Multivariate Statistical Methods
- Spring 2020
  - Econometrics I
  - Natural Language Processing
  - Biomedical Imaging & Data Science
- Fall 2019
  - Microeconomic & Organization Theory
  - Research Design I
  - Statistics

*Beacom School of Business, University of South Dakota*

**MBA**

- Fall 2018
  - Data Management & Warehousing
  - Quantitative Analysis
  - Business & its Environment



- Summer 2018
  - Operations Management
  - Strategic Management
- Spring 2018
  - Managerial Accounting
  - Leadership Development
  - Operational Analytics
  - Managerial Economics II
- Fall 2017
  - Managerial Finance
  - Managerial Marketing
  - Data Mining for Competitive Advantage
- Summer 2017
  - Data Mining for Managers

## **XI. References**

**Dr. Nichalin Summerfield, Assistant Professor (PhD Academic Co-Advisor)**

Department of Operations & Information Systems (Analytics & Operations Management Section)

Manning School of Business, University of Massachusetts Lowell  
(978) 934-5525, nichalin\_summerfield@uml.edu

**Dr. Ali Dag, Associate Professor (Masters Academic Advisor)**

Department of Decision Sciences

Heider College of Business, Creighton University  
(402) 280-2700, alidag@creighton.edu

**Dr. Serhat Simsek, Assistant Professor**

Department of Information Management & Business Analytics  
Feliciano School of Business, Montclair State University  
simseks@montclair.edu

**Dr. Srini Ragothaman, Interim Chair**

Department of Accounting & Finance  
Beacom School of Business, University of South Dakota  
(605) 658-6561, Srini.Ragothaman@usd.edu