MARYAM PISHGAR

Department of Industrial and Systems Engineering, College of Engineering
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EDUCATION

Aug. 2017- May. 2023	**Ph.D.,** University of Illinois at Chicago, Chicago, IL **Industrial Engineering and Operation Research Focus Data Science**
Aug. 2017- Aug. 2019	**M.S.,** University of Illinois at Chicago, Chicago, IL **Industrial Engineering**

WORK EXPERIENCE

2023-Present   Full Time Lecturer
Industrial Systems Engineering, College of Engineering, University of Southern California

- Teach graduate- level courses (500 level) in industrial and systems engineering such as predictive analytics, data anlytical consultation, text analytics and optimization.
- Lead research in the areas of data mining, process mining, and simulation
- Author and co-author journal and conference publications

2022-Present   Part Time Lecturer
Computer Information System, College of Business Administration, Cal Poly Pomona
Industrial and Manufacturing Engineering, College of Engineering, Cal Poly Pomona
Computer Science and Engineering, College of Engineering, Cal State Fullerton
Computer Science and Engineering, College of Engineering, Cal State Long Beach
Computer Information System, College of Business, Cal State Long Beach

- Teach senior-level undergraduate courses in Cal State Universitas: Discrete Simulation System, Economic Engineering, Python, Artificial Intelligence, Machine Learning, Networking, Database Management
- Teach data science and analytics class to graduate students
- Design and instruct a full series of laboratories for discrete simulation system and data analytics
- Lead research in the areas of data mining, process mining, and simulation
- Supervise multiple undergraduate and graduate students in their terminal projects
- Author and co-author journal and conference publications

2022-2023   Post Doctorial Fellow
Biomedical Engineering, College of Engineering, University of California- Irvine

- Doing research in generating deep fake echo and MRI
- Author and co-author journal and conference publications

2017-2023   **Graduate Research Assistant**
Industrial Engineering and Operation Research, College of Engineering, University of Illinois at Chicago

- Developed Machine Learning and Deep Learning classification models using Mel-Cepstrum Vectors of the Audio data of patients with vocal disorder
- Created a Process Mining/ Deep Learning framework to predict unplanned 30- day readmission of the ICU patients with Heart Failure by using MIMIC-III clinical database of the over 10,000 Heart Failure patients
- Developed a Deep Learning methodology to predict Mortality of the ICU patients with Paralytic Ileus by using MIMIC-III Database of 3000 patients
- Built a Process Mining/ Deep Learning framework, and several unique Machine Learning and Deep Learning models to predict Mortality of the COVID patients on University of Illinois clinical data
- Developed several unique Machine Learning models to predict criticality and mortality of the COVID patients on University of Illinois clinical data
- Developed a framework to review the application of Artificial Intelligence in Occupational Safety and Health in main industries and identified the rooms for improvement
- Wrote 8 research papers, 6 of them are accepted to the journals and conferences, and 2 of them are under review

2020-Present   **Co-Founder and Co-CEO**
 Solix Business Services

- Collect and clean the costumers' data
- Create the profit and loss reports to enhance business strategy
- Create visualization of spending and sales
- Forecast profits and sales and more by building Machine Learning and Deep Learning models to answer to the key business questions
- Provide business strategy reports including allocation of marketing resources efficiently
- Provide sales cycles analysis
- Provide break-even price analysis
- Provide a process model through our process mining tool, and detect the bottle necks of the processes
- Provide deviation analysis
- Provide consultancy through data analytics

2013-2022   **Professional Tutor**
Harold Washington College, Chicago, IL

- Support services consisting of peer-facilitated learning experiences for undergraduates
- Support students in exam preparation, time management, procrastination, course-specific assistance, study skills, goal setting, test anxiety, and more

TEACHING EXPERIENCE

Instructor, University of Southern California, and Cal State Universities

IME 4030	Financial Engineering	Spring 2022
IE 4290	Discrete Simulation Systems	Spring 2022
CIS 2100	Programming for Business Analytics	Fall 2022 to present
CPSC 481	Artificial Intelligence	Fall 2022 to present
CPSC 483	Machine Learning	Fall 2022 to present
ISE 529	Predictive Analytics	Spring 2023 to present
ISE 530	Optimization	Spring 2023 to present
ISE 534	Consultation	Spring 2023 to present
ISE 540	Text Analytics	Spring 2023 to present

Teaching Assistant, University of Illinois at Chicago, Chicago

Data Science	Falls 2017,19, 20, 21
Process Mining in Healthcare	Spring 2021, 22
Senior Design	Springs 2017,18, 19, 20
Work and Productivity Analysis	Fall 2018

PUBLICATIONS

Pishgar, M., Karim, F., Majumdar, S., Darabi, H. (2018). Pathological voice classification using mel-cepstrum vectors and support vector machine, *IEEE big data 2018*.

Pishgar, M., Issa, S.F.; Sietsema, M.; Pratap, P.; Darabi, H. (2021). REDECA: A Novel Framework to Review Artificial Intelligence and Its Applications in Occupational Safety and Health, *Int. J. Environ. Res. Public Health*, *18*, 6705.

Galanter, W., Rodríguez-Fernández, J.M., Chow, K., Harford, S., Kochendorfer, K.M., **Pishgar, M**., Theis, J., Zulueta, J., Darabi, H. (2021). Predicting clinical outcomes among hospitalized COVID-19 patients using both local and published models. *BMC Med. Inform. Decis. Mak. 21*, 1–18.

Pishgar, M., Razo, M., Theis, J., Darabi, H. (2021). Process Mining Model to Predict Mortality in Paralytic Ileus Patients, *International Conference on Cyber-Physical Social Intelligence*.

Pishgar, M., Razo, M., Darabi, H. (2022). Deep Learning Model for Mortality Prediction of ICU Patients with Paralytic Ileus. *BMC Med. Inform. Decis. Mak.*

Pishgar, M., Razo, M., Darabi, H. (2022). Improving Process Discovery Algorithms Using Event Concatenation, *IEEE Access*.

Pishgar, M., Theis, J., Theis, J., Rios Del, M., Ardati, A., Anahideh, H., Darabi, H. (2022). Prediction of Unplanned 30- day Readmission for ICU Patients with Heart Failure. *BMC Med. Inform. Decis. Mak.*

Pishgar, M., Galanter, W., Rodríguez-Fernández, J.M., Chow, K., Harford, S., Kochendorfer, K.M., Theis, J., Zulueta, J., Darabi, H. (2022). A Process Mining- Deep Learning Approach to Predict Survival in a Cohort of Hospitalized COVID-19 Patients, *BMC Med*.

AWARDS AND HONORS

2017-   Fellowship from National Institute for Occupational Safety and Health (NIOSH)

Present

2021   1st Place First Award, Research Poster Competition, Business Process Management in Healthcare, Graduate School, University of Illinois at Chicago

2020   Outstanding Graduate Student Achievement Award, Center for Excellence in Logistics and Distribution (CELDi)

2019   Outstanding Graduate Student, Awarded at University of Illinois at Chicago, Chicago, IL

2018   3st Place in IEEE Big Data 2018 Competition for "Pathological voice classification using mel-cepstrum vectors and support vector machine," IEEE big data 2018 Annual Conference, Seattle, WA

GRANTS AND FELLOWSHIPS

2017- Present $105,000. NIOSH Trainee

2017- Present $50,000. Graduate Assistantship, University of Illinois at Chicago

2017- Present $5,000. Graduate School Travel Grant, University of Illinois at Chicago

2019 $1,000. Student Paper Competition Award, ASSP

INVITED TALKS

"Business Grow Through Data Analytics", KCAARADIO (Radio Talk Show), Feb 1st, 2022.

"Application of AI in Occupational Health and Safety", University of Illinois at Chicago, Department of Public Health, Graduate Seminar, August 31, 2020.

"Driver Fatigue Detection Through Deep Learning and Machine Learning Modeling", University of Illinois at Chicago, NIOSH Trainee Seminar, July 11, 2019.

CONFERENCE PARTICIPATION

Presentations

2022   "The Power of Data to Grow Your Business," Eventbrite (Virtual).

2021   "Process Mining Model to Predict Mortality in Paralytic Ileus Patients," International Conference on Cyber-Physical Social Intelligence Annual Conference (Virtual).

2018   "Pathological voice classification using mel-cepstrum vectors and support vector machine," IEEE big data 2018 Annual Conference (Seattle).

SERVICE TO PROFESSION

Manuscript review for the following journals: *IEEE Access, Applied Mathematical Programming*, *Computers and Industrial Engineering, The Engineering Economist*, *International Journal of Production Research*, and *The IISE Annual Conferences*

PROFESSIONAL MEMBERSHIPS

Institute of Industrial and Systems Engineers (IISE)
The Institute for Operations Research and the Management Sciences (INFORMS)
American Society for Quality (ASQ)
International Council on Systems Engineering (INCOSE)
American Society of Safety Professional (ASSP)

Skills

Experienced in scientific computing tools; Python, Fortran, Matlab/Octave, Linux environments; high-performance computing environments; intermediate in Julia, C ++, Java, CUDA, R

Experienced in data science tools in an academic research setting; primarily through the Python framework (ipython and jupyter notebooks, numpy, matplotlib, pandas, sklearn, pytorch, Statsmodels, SciPy, Keras, Tensorflow, Matplotlib, seaborn, etc.)

Experienced in LaTeX, HTML, Photoshop, Statistical Analysis

Experienced in Simulation software; ProModel, Arena

Experienced in Process Mining Discovery tools; ProM, ProcessM