Mehran Kamkar, Ph.D.

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Data Scientist – Ph.D.
Data Mining │ Text Mining │ Information Extraction

- Data Scientist in Roche Canada, Since 2021
- Senior Data Scientist in Genentech, 2020-2021
- NLP Data Scientist in Chisel.AI, 2018-2020
- Data mining and Text mining for Legal analytics in Loom analytics 2016-2017
- Ph.D., Electrical and Computer Engineering, OntarioTech (University of Ontario Institute of Technology)
- Eight years' experience of Research and Teaching experience in academia as a faculty member, 2006-2014

Technical Skills

Programming: Python (pytorch, keras, pandas, numpy, sklearn, scipy, AutoML, genism, re, etc.), C, C++, VB, Pascal, Basic, Assembly, Ladder, VHDL, Verilog, R, MATLAB
Tools: AWS (Comprehend, Textract, Rekognition, Athena, Kendra, EC2, Augmented AI(A2I), S3 and SageMaker), GCP (BigQuery, Cloud Storage), Dataiku, H2O, Rapidminer, WEKA, Neo4j, SPSS
Databases: SQL, BigQuery, PostgreSQL, MongoDB, Athena

Professional Experience

GENENTECH / ROCHE

Projects and Research Areas:

- PT Quality Intelligence Solutions (Deviation Reduction Lighthouse) pipeline in ECAS (AWS): Translation / NER / Text Classification (supervised) / Topic modeling (unsupervised)
- Key Phrase Extraction
- Automated record clusters categorization by semantic similarity
- Text certainty level Analysis
- Fine-tune BERT (distilBERT) language model based on domain context (deviation records).
- Ad-hoc analysis and collaboration with different groups (BBK, Basel DS UPE,…)
- Implement local translation solution for HYPE

CHISEL AI

Projects and Research Areas:

- Information Extraction and Named-Entity Recognition from Insurance related Documents (submission, application, policy, binder, and emails) Implemented by GCN
- Several Document Classification projects (CNN, LSTM, SVM, Random Forest, and etc. classification approaches are employed)
- Employing the State-Of-The-Art Language Models (BERT, ELMo, GPT-2, sent2vec, etc.) and Word Embedding models (Word2Vec, GloVe, fastText)
- Algorithm Development

Loom Analytics

Projects and Research Areas:

- Named-Entity Recognition from Canadian courts Documents
- Text mining project by line classification
- Algorithm Development

OntarioTech (University of Ontario Institute of Technology), Canada

Projects and Research Areas:

- Thesis title: Global-Local Word Embedding for Text Classification
  http://hdl.handle.net/10155/1030
- News Analytics (Predicating Hot topics to boost the traffic of websites)
- Movie Analytics (Link and Relation Detection Based on Screenplay)
- Discovering Credible Twitter Users in Stock Market Domain (Detecting Domain Experts based on their followers' network)
- Social Media Data Mining
- Improving Document Representation methods
- Information Extraction
- Legal Data Mining
- Data Mining

Publications:

Thesis:
- M. Kamkarhaghighi, "Global-local word embedding for text classification," 2019.

Journal Paper:
- M. Kamkarhaghighi and M. Makrehchi, "Content Tree Word Embedding for Document Representation," Expert Systems with Applications, 2017.

Book Chapter:
- M. Kamkarhaghighi, E. Gultepe, and M. Makrehchi, "Deep Learning for Document Representation," in Handbook of Deep Learning Applications: Springer, 2019, pp. 101-110.

Conference Presentation:
- E. Gultepe, M. Kamkarhaghighi, and M. Makrehchi, "Latent Semantic Analysis Boosted Convolutional Neural Networks for Document Classification," in 2018 5th International Conference on Behavioral, Economic, and Socio-Cultural Computing (BESC), 2018, pp. 93-98: IEEE.
- M. Kamkarhaghighi, I. Chepurna, S. Aghababaei, and M. Makrehchi, "Discovering Credible Twitter Users in Stock Market Domain," in Web Intelligence (WI), 2016 IEEE/WIC/ACM International Conference on, 2016, pp. 66-72.

Achievements:
- Ontario Graduate Scholarship (OGS), Ontario Ministry of Training, Colleges, and Universities, 2017-2018

Projects and Research Areas:

- Game Development
- Patient Rehabilitation

Publications:
Journal Papers:
- M. Kamkarhaghighi, M. Kamkarhaghighi, P. Mirza-Babaei, P. Mirza-Babaei, K. El-Khatib, K. El-Khatib*, et al.*, "Architecture guideline for game-based stroke rehabilitation," *World Journal of Science, Technology and Sustainable Development,* vol. 14, pp. 228-240, 2017.

Book Chapter:
- M. Kamkarhaghighi, P. Mirza-Babaei, and K. El-Khatib, "Game-Based Stroke Rehabilitation," in *Recent Advances in Technologies for Inclusive Well-Being*, ed: Springer, 2017, pp. 147-162.

Conference Presentation:
- P. Mirza-Babaei, M. Kamkarhaghighi, and K. Gerling, "Opportunities in game-based stroke rehabilitation," in *Games Media Entertainment (GEM), 2014 IEEE*, 2014, pp. 1-4.

IRAN UNIVERSITY OF MEDICAL SCIENCES

Projects and Research Areas:
- Medical Informatics
- E-Learning
- Virtual Hospital

Teaching:
- Computer Applications in Management, School of Health Care Management
- Computer and Programming, School of Health Care Management
- Informatics Systems, School of Health Care Management and Faculty of Public Health
- Computer Applications in Medical Education, Educational Development Center
- Computer and New Technologies in Medical Documents, School of Health Care Management
- Management of Centers and Informatics Networks IT in Nursing, School of Nursing & Midwifery

Publications:
Journal Papers:
- M. R. Katigari, H. Ayatollahi, M. Malek, and M. K. Haghighi, "Fuzzy expert system for diagnosing diabetic neuropathy," *World journal of diabetes,* vol. 8, p. 80, 2017.
- H. Moghaddasi, S. Sajjadi, and M. Kamkarhaghighi, "Reasons in Support of Data Security and Data Security Management as Two Independent Concepts: A New Model," *The open medical informatics journal,* vol. 10, p. 4, 2016.
- Z. Mahmoudvand, M. Kamkar, L. Shahmoradi, and A. F. Nejad, "Determination of Minimum Data Set (MSD) in Echocardiography Reporting System to Exchange with Iran's Electronic Health Record (EHR) System," *Acta Informatica Medica,* vol. 24, p. 116, 2016.
- H. Ayatollahi, M. Hasannezhad, H. S. Fard, and M. K. Haghighi, "Type 1 diabetes self-management: developing a web-based telemedicine application," *Health Information Management Journal,* vol. 45, pp. 16-26, 2016.
- H. Moghaddasi and M. Kamkarhaghighi, "Conceptual and practical evolution of the virtual hospital," *Razi Journal of Medical Sciences,* vol. 21, pp. 1-11, 2015.
- J. Zarei, A. Mohammadi, M. E. Kameli, H. M. Kamkar, And M. K. Amini, "A Survey on The Status of The Application of Document Imaging for Storage Medical Records of Hospitals In Iran, 2013," 2015.
- H. Mehdizadeh, H. Ayatollahi, N. Esmaeili, and M. Kamkar, "Designing and building a teledermatology system," *Journal of Mazandaran University of Medical Sciences,* vol. 25, pp. 170-184, 2015.

- J. Zarei, M. Kamkarhaghighi, And A. Khash, "Revision of The Laws for Medical Records Retention in Hospitals in Iran," 2014.
- M. Kameli, H. M. Kamkar, M. Parvan, and J. Zarei, "The medical records maintenance in hospitals of Iran: A national survey," 2014
- H. Mahdizadeh, H. Ayatollahi, N. Esmaeili, and K. Mehran Kamkar, "Teledermatology: A comparison of reliability and accuracy of diagnoses with those in the face to face visits," *Journal of Dermatology and Cosmetic,* vol. 4, pp. 148-156, 2013.
- S. Asadzandi, A. Shahbodaghi, S. Sajjadi, M. Kamkarhaghighi, and M. Hemmat, "A scientometric study of media literacy literature based on Scopus record through 2011," *Journal of Paramedical Sciences,* vol. 4, 2012.
- M. Kamkarhaghighi, M. Ghazisaedi, M. Meraji, and K. Kimiafar, "Comparison of Open Source Learning Management Softwares and Presenting a Native Evaluation Tool," *Iranian Journal of Medical Education,* vol. 11, pp. 398-407, 2011.
- M. Barabadi, M. Ahmadi, And H. M. Kamkar, "Evaluation of hospital information systems in the medical records department," 2010.
- F. Sadoughi, M. Kamkar, and Z. Shahinfar, "Evaluation of hospimp (hospital import)," *Journal of Mazandaran University of Medical Sciences,* vol. 19, pp. 68-72, 2009.
- M. Setayesh Barhaghi, M. Kamkar Haghighi, and M. Alizadeh, "Designing natural disaster management information system," *Journal of Health Administration,* vol. 10, pp. 45-54, 2007.

Books:
- Abbasi, A. Sharifian, S. Goharinejad, S. Kamkarhaghighi, M. "Quality Assurance: A reference system for indicators and evaluation procedures including NSSE Questionnaire", Tehran, Iran, Nehzat Pooya publication, 1st Edition, 2012
- Kamkarhaghighi, M. Abbasi, A. "E-Learning: Questions and Answers", Tehran, Iran, Nehzat Pooya publication, 1st Edition, 2009
- Bahador, H. Kamkarhaghighi, M. Agah, Sh. "Mobile-Learning", Tehran, Iran, Nehzat Pooya publication, 1st Edition, 2009
- Parvizy, S. Hajamiri, P. Kamkarhaghighi, M. "Index of Medical Sciences Education and E-Learning", Tehran, Iran, Nehzat Pooya publication, 1st Edition, 2009

Conference Presentations:
- Kamkarhaghighi, M. "Comprehensive Website Evaluation Criteria for Patient Education", Presented in the 2nd National Congress on patient education, 2014, Tehran, Iran
- Kamkarhaghighi, M. "Nano Medical informatics and its Role in Development of Medicine", Presented in the 3rd Medical Informatics Seminar for students, 2013, Tehran, Iran
- Mehdizadeh, M. Ayatollahi, H. Esmaeili, N. Kamkarhaghighi, M. "Teledermatology: comparison of diagnostic accuracy and compliance with physical examinations", First Telemedicine Conference, 2013, Tehran, Iran
- Kamkarhaghighi, M. "IT and patient education", Presented in the 1st National Congress of patient education, 2012, Tehran, Iran
- Kamkarhaghighi, M. Zehtabhashemi, H. "Cloud Computing in Health Sector", Presented in the 1st Symposium of The Role of Basic Science in Health Promotion, 2012, Tehran, Iran
- Borjalilu, S. Mohammadi, A. Kamkarhaghighi, M. Mojtahedzadeh, R. "Prediction of academic self-regulation By component of e-learning environmental system"5th Electronic Learning Congress in Medical Education,2012, Kerman, Iran
- Kamkarhaghighi, M. Zolfkhani, S. "Information and Communication Technology in Medicine", Presented in the 2nd Medical Informatics Seminar for students, 2012, Tehran, Iran
- Zehtabhashemi, H. Kamkarhaghighi, M. "Cloud Computing and it's usage in Healthcare", Presented in the 2nd Medical Informatics Seminar for students, 2012, Tehran, Iran
- Maboudi, AA. Rahmatizadeh, Sh. Kamkarhaghighi, M. "Using Wavelet for Compressing CT-Scan Images", Presented in the 2nd Medical Informatics Seminar for students, 2012, Tehran, Iran
- Medanlo, M. Kamkarhaghighi, M. "E-Learning in Nursing", Presented in the 2nd Medical Informatics Seminar for students, 2012, Tehran, Iran
- Abbasi, A. Kamkarhaghighi, M. Setayesh, M. "Review the effect of using Computer Assisted Assessment System in comprehensive examination in medical basic sciences in Iran University of Medical Sciences", Abstract accepted to be presented at international Journal of Arts & Sciences (IJAS) Conference for academic disciplines,2010, Aix-en-Provence, France
- Kamkarhaghighi, M. Meraji, M. Ghazisaeidi, M. Ramezanghorban, N. Kimiafar, K."Comparative study of four open source code learning management systems", Presented in the Electronic University Conference, 2010, Tehran, Iran

- Kamkarhaghighi, M. Meraji, M. Ghazisaeidi, M. Ramezanghorban, N. Kimiafar, K." Review of making e-learning's content standards ", Presented in the Electronic University Conference, 2010, Tehran, Iran
- Kamkarhaghighi, M. Meraji, M. Ghazisaeidi, M. Ramezanghorban, N. Kimiafar, K."Comparative Study of open source code learning management systems; to provide a native model ", Presented in the 3th national conference on implementation of e-Learning in medical sciences, 2010, Mashhad, Iran
- Kamkarhaghighi, M. Meraji, M. Ghazisaeidi, M. Ramezanghorban, N. Kimiafar, K." Review of e-learning standards with emphasis on SCORM ", Presented in the 3th national conference on implementation of e-Learning in medical sciences, 2010, Mashhad, Iran
- Kamkarhaghighi, M. "Study of the elements which are used in PCs and their Impact on Environment", Presented in the 2nd congress of Iranian trace elements, 2010, Tehran, Iran

Research Experience:

- Principal investigator, research project entitled: "*National plan for revision of laws related to retention of medical records in healthcare centers in Iran*", 2014, Iran University of Medical Sciences
- Principal investigator, research project entitled: "*Systematic review of Cloud Computing in Iranian Health care*", 2012, Shahid Beheshti University of Medical Sciences
- Principal investigator, research project entitled: "*A Scientometric Overview of Medical Informatics articles and review its visible accessibility based on Web of Science Database*", 2012, Shahid Beheshti University of Medical Sciences
- Co-investigator, research project entitled: "*A Scientometric Overview of Medical Informatics articles and review its visible accessibility based on Scopus*", 2012, Shahid Beheshti University of Medical Sciences
- Co-investigator, research project entitled: "*Compression of CT Scan images with Wavelet Transform*", 2012, Shahid Beheshti University of Medical Sciences
- Co-investigator, research project entitled: "*A Comparision of visibility and accessibility of Medical Informatics articles based on Web of Science and Scopus Databases in Google search engine*", 2012, Shahid Beheshti University of Medical Sciences
- Principal investigator, research project entitled: "*To Design and Develop of Medical Education Encyclopedia*", 2010, Tehran University of Medical Sciences
- Principal investigator, research project entitled: "*The study of the web-based learning education on the knowledge and satisfaction of the cancer patients and their families*", 2009, Iran University of Medical Sciences
- Principal investigator, educational project entitled: "*Compilation Distance Learning Rules*", 2007, Iran University of Medical Sciences

Domains of Consultation:
- IT infrastructures in university
- Software integration
- Software security

Domains of Activity:
- Project Management
- Content Management System design and development
- Online content development

Domains of Activity:
- Project Management
- Student Management software design and development
- Educational Evaluation Software design and development

Education & Training

Higher Education:
- Ph.D., Electrical and Computer Engineering, OntarioTech (University of Ontario Institute of Technology)
- Master of Science in Computer Architecture from Sharif University of Technology
- Bachelor of Science in Computer Engineering (Hardware) from Azad University Central Branch

Professional Courses:
- (2018) "Big Data Technology Fundamentals Online, Amazon AWS Training, Canada
- (2016) Certificate in University Teaching for Teaching Assistants from UOIT Teaching and Learning Centre, Oshawa, Ontario, Canada
- (2016) "Mindsight™", Online Course, Faculty of Health Sciences, University of Ontario Institute of Technology, Canada
- (2014) "Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans Course on Research Ethics (TCPS 2: CORE)", Panel on Research Ethics, Online course, Canada