

MENGLING ‘MORNIN’ FENG PH.D

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Dr. Feng's research is to develop effective data analytics and Artificial Intelligence (AI) solutions to extract actionable knowledge to improve the quality of care. His research brings together concepts and tools across machine learning, optimization, signal processing, statistical causal inference and big data management. In particular, he has been publishing on physiological signal forecasting, modeling of disease progress trajectory, dynamic patient phenotyping, statistical understanding of treatment effects and management of heterogeneous medical big data. Dr. Feng works closely with clinicians around the world, and he also collaborates with major healthcare and IT companies, such as MSD, Philips and SAP. Dr. Feng's work was recognized by both well-established journals, such as Science Translational Medicine, JAMA, Intensive Care Medicine and top international conferences, such as KDD, AAAI and AMIA.

RECENT & PAST APPOINTMENTS

National University of Singapore (NUS),

Assistant Professor , Saw Swee Hock School of Public Health (SSHSPH),	since 2016
Assistant Professor (joint) , Yong Loo Lin School of Medicine,	since 2016
Assistant Professor (joint) , School of Computing	since 2016
Assistant Professor (joint) , Institute for Data Science	since 2018
Assistant Professor (joint) , Smart System Institute	since 2018

National University Hospital Study (NUHS)

Senior Assistant Director (for Healthcare Big Data and AI)	since 2016
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Institute for Infocomm Research, A*STAR, Singapore

2009-2016

Lab head of Bioinformatics and Healthcare Analytics, Data Analytics Department,

Co-deputy Director of joint lab with NEC

- Lead the Biomedical and Healthcare Analytics lab of 5 data scientists and 1 physician. The lab aims to extract actionable knowledge from biomedical data to improve the quality and reduce the cost of healthcare.
- Managed the joint lab with NEC (SGD 600K over 2 years) to develop and commercialize healthcare analytics technologies (project details cannot be shared due to the non-disclosure agreement).
- Championed a research project as the Principal Investigator with a 3-year fund of S\$725K. Collaborated with the Bioinformatics Institute and National University Hospital, Singapore, to discover Single-nucleotide polymorphism combinations that are associated with non-small cell lung cancer patients' response to treatments. Supervised 2 research engineers. Published 1 Journal paper and filing 1 patent.
- Led a team of 2 PhDs and 2 Engineers to predict the progression trends and outcomes of acute brain injury patients. Worked closely with the neurosurgeons from Singapore National Neuroscience Institute. Published 1 Journal and 8 Conference papers.
- Worked with the economists from Singapore Ministry of Finance to build a mathematical model to simulate the economical reactions of Singaporeans upon changes in policies.
- Collaborated with School of Computing, National University of Singapore (NUS) for a 3-year research grant of S\$960K. Results were published TKDD, KDD and ICDE, the top data mining journal and conferences.
- Awarded the team-player award for two consecutive years.

Harvard-MIT Health Sciences and Technology Division (HST),

Lab for Computational Physiology: <http://lcp.mit.edu/>

Senior Post-doctoral Fellow

6/2012 ~ 6/2015

Research Affiliate

since 6/2015

- Collaborated with clinicians and data scientists from US, Israel, Germany, and Singapore. Developed various Medical Big Data management and analytics methods to enable evidence-based and precision medicine. Published on topics of physiological signal forecasting, disease progress modeling, dynamic patient phenotyping, and statistical evaluation of treatment effects (4 Journals and 6 Conferences).

- Initiated a partnership with SAP and the Future SOC Lab of Hasso-Plattner-Institut. Successfully convinced SAP to fund my research in Medical Big Data Analytics with US\$150K for the first year. Our research results were featured as tutorials and demos in both KDD and AMIA, two of the top data analytics conferences. Acknowledging the success of the collaboration, SAP agreed to continue to fund for two more years and to develop a long-term partnership.
- Organized two international data hackathons ([link](#)) as a committee member. Worked together with our industrial collaborators (SAP & QwikLab) to provide cloud-based data infrastructure for the data hackings.
- Collaborating with hospitals from UK, France and Belgium to create a multi-national electronic medical record database (secured a 3-year funding from NIH). Designed the data platform to support distributed data integration and federated queries.
- Working with the Philips eICU (telemedicine) research team to analyze their 2 million ICU patient data to develop the next generation of decision support and personalized medicine tools.
- Taught the MIT course on “Global Health Informatics to Improve Quality of Care” as a faculty member. Taught “Health Informatics” at Boston University as a guest lecturer. Supervised 2 MIT undergraduate students and co-supervising a PhD student from University of Technology Sydney.

MIT BIG DATA Initiative @ Computer Science Artificial Intelligent Lab (CSAIL), Member

Since 9/2014

<http://bigdata.csail.mit.edu/user/151>

- Taught a tutorial on Medical Big Data Management in KDD, one of the top Data Mining Conferences.
- Conducted a system demo on Cloud-based Medical Data Management in AMIA, the top Medical Informatics Conference. The demo was featured as the daily highlight.
- Presented at MIT Big Data Initiative Annual Meeting 2014

IMPACT Program of Innovation Initiative, MIT, Pilot Member

Since 11/2014

<http://www.rle.mit.edu/impact/>

- Selected as one of the 12 pilot members
- Worked with 9 faculty mentors and other members to explore real-world impacts of our research
- Trained on pitching research ideas to diverse audiences under various circumstances

EDUCATION

Ph.D in Data Mining & Machine Learning, Nanyang Technological University (NTU), Singapore

2004-2009

School of Electrical and Electronic Engineer,

- Supervised by Limsoon Wong (NUS), Yap-peng Tan (NTU) and Jingyan Li (UTS, Sydney).
- Proposed novel incremental algorithms to incrementally update discovered rules for data updates and very large data. Published 2 journal papers and 5 conference papers.
- Obtained one best-paper and one 1st-runner-up best-paper award.

Bachelor, Nanyang Technological University (NTU), Singapore

1999-2003

School of Electrical and Electronic Engineer,

- First-class honors
- Recognized as the Dean’s list for 4 consecutive years.

AWARDS

- Singapore Data Science Consortium Dissertation Research Fellowship (my PhD student) 2021
- Second runner-up Physionet Challenge 2020
- Finalist for MedTech Innovator Asia Pacific 2020
- Graduate Student Research Award (my PhD student) 2020
- Gold and Silver medals for Kaggle Medical Imaging AI competitions 2019
- 1st Runner-up ISIC 2018: Skin Lesion Analysis Towards Melanoma Detection Competition, 2018
- Top 5 (Team “Eagle Eye”) in The Digital Mammography DREAM Challenge 2017
- Merit Award of MINDEF Data Challenge and Hackathon 2015
- McKinsey Insight Program 2015
- MIT Teaching & Learning Laboratory Kaufman Teaching Certificate 2015
- Second runner-up of Best Student Paper Award, KDD Working Group, AMIA 2014
- Finalist of MIT 2013 Innovation in Health Care Conference Innovation Showcase, 2013
- Singapore, A*STAR overseas fellowship, 2012-2014
- Team-player Award, Data Mining Department, Institute for Infocomm Research 2010-2012
- Best “Science” Award, ArtScience Competition, A*STAR 2011
- First runner-up of best paper award in ADMA, 2008
- I2R bi-annual best paper award, 2005
- A*STAR Graduate Academic scholarship, 2004-2009
- Ministry of Education scholarship, 1997-2003

MEDIA PRESENCE

- Facebook media release, “Meeting with Bhutanese Prime Minister” Oct 2019
- Live interview “Evening News”, Channel News Asia, Singapore, 18th July 2019
- Interview “Morning Express” (晨光|中国AI 智能未来: 中国AI医生崛起 在医疗前线服务), Channel 8, Singapore 10th April 2019
- Article “Harnessing AI to give health sector a shot in the arm”
(<https://www.straitstimes.com/singapore/health/harnessing-ai-to-give-health-sector-a-shot-in-the-arm>) July 7th 2018
- Article “国大试行新技术提升检测患乳癌风险效率”
(<https://www.zaobao.com.sg/news/singapore/story20180707-873109>) July 7th 2018
- Article “How AI can aid healthcare”, **Newspaper Today**, Sep 11th 2017
- Article “Big-data Detectives”, A*STAR Research Online Magazine, Nov 2nd 2016
- Artificial Intelligence platform launched to help doctors crunch patient data, make better diagnoses at Channel News Asia: <https://www.channelnewsasia.com/news/singapore/artificial-intelligence-platform-launched-to-help-doctors-crunch-10505634> July 6th 2018
- Three invaluable lessons for building healthcare AI (<https://www.sginnovate.com/blog/three-invaluable-lessons-building-healthcare-ai>), SG Innovate

RESEARCH GRANTS

- **Co-Principal Investigator**, “JARVIS: Transforming Chronic Care for Diabetes, Hypertension and HyperLipidemia (DHL) with AI”, AI Singapore, S\$25 Mil 2021 ~ 2026
- **Principal Investigator**, “Surgical Risk Stratification and Outcomes Prediction”, AI Singapore 100E program (sponsored by Singapore General Hospital), S\$350,000 2020~2022
- **Co-Principal Investigator**, “Automating the detection of frailty”, NUHS Seed Grant, S\$95,000 2020~2022
- **Principal Investigator**, “An AI assistant to radiologists that reads mammograms to automatically detect breast cancers and generate diagnostic reports: a technology combines the learning of images and free text”, Ministry of Health, Health Service Research Grant, S\$1.04 Mil 2018~2022
- **Co-Principal Investigator**, “An Explainable AI System for Community Care”, AI.SG Healthcare Grand Challenge, S\$5 Mil 2019-2021
- **Co-Investigator** “Development of a novel imaging-based machine-learning algorithm for the screening of osteoporosis using dental radiographs”, iHealthTech, \$100K 2019-2021
- **Principal Investigator**, “AI Assisted Breast Cancer Diagnosis: Prototype Develop and Clinical Validation”, Singapore-MIT Alliance Research and Technology, S\$244K 2019-2021
- **Co-Investigator**, “Automatic X-ray fracture detection using deep machine learning factors impacting model performance”, NUHS Seed Grant, S\$172K 2019-2021

- **Principal Investigator**, “Artificial Intelligence Models to Assist Breast Cancer Diagnosis with Mammogram Image Data”, NUHS, S\$167K 2018~2020
- **Principal Investigator**, NUS-USydn Joint Research and Joint Seminar Grant, S\$40K 2020~2021
- **Principal Investigator**, JSPS-NUS Joint Research and Joint Seminar Grant, S\$38K 2018~2019
- **Co-Investigator**, Clinical Scientist Award, NUHS, \$3 Mil 2017~2022
- **Co-Investigator**, National Medical Research Council, Center Grant in collaboration with Khoo Teck Puat Hospital, S\$1.5 Mil 2017~2022
- **Principal Investigator**, “Integration and Analytics of Genomics and Clinical Data”, Center for Precision and Personalised Health (CPPH), NUHS, S\$300K 2017~2018
- **Principal Investigator**, Start-up Grant, Saw Swee Hock School of Public Health, NUS, S\$120K 2017~2019
- **Champion** of industrial sponsorship from SAP, US\$150K, 2014~2015
- **Principal Investigator** of “Molecular Profiling of Non-small Cell Lung Cancer: from SNP-SNP Interaction to Pathway Analysis and Epidemiological Study”, A*STAR JCO Grant, S\$725K, Singapore, 2010~2013
- **Collaborator** of “Supporting Diagnostic Data Mining via Exploratory Hypothesis Testing and Analysis”, Public Sector Fund (\$750K), Singapore, 2009 - 2012
- **Member** of The DJ, its Music And the Groovy mOves (DJ MAGO), funded by Infuse Office, S\$65K, 2012 July 5th 2018

LEADERSHIP & PROFESSIONAL SERVICE

- International Advisory Board, “Lancet Digital Health” since 2021
- Editorial Board member, “Applied Clinical Information Journal” since 2021
- Reviewer, Radiology: Artificial Intelligence since 2021
- Reviewer, Signal, Image and Video Processing (SIVP) since 2020
- Reviewer, Nature Scientific Data since 2019
- Editorial board member, “Healthcare Data Science” Journal since 2020
- Chapter Chair, OHDSI, Singapore since 2019
- Program Committee, Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD) since 2019
- Reviewer, Journal of Medical Internet Research since 2018
- Reviewer, Informatics (Journal), since 2019
- Reviewer, International Journal of Environmental Research and Public Health, since 2019
- Reviewer, Journal Processes, since 2019
- Reviewer, Research Grant, Israeli Ministry of Science and Technology, since 2019
- Reviewer, European Journal of Public Health since 2019
- Reviewer, Applied Science Journal, since 2019
- Reviewer, American Medical Informatics Association (AMIA) Annual Symposium since 2018
- Scientific Mentor, Korea Clinical Datathon since 2018
- Organizing Chair, Singapore Healthcare AI and EXPO, 2018 since 2018
- Judge, ANZICS Critical Care Datathon, 2018
- Scientific mentor, Beijing PLA-MIT Datathon 2017
- Co-organizer, Tokyo Healthcare Analytics Symposium and Datathon 2018
- Organizing Chair, NUS-MIT Healthcare Analytics Symposium and Datathon 2017
- International Scientific Advisory Committee, 16th International Symposium on Intracranial Pressure and Neuromonitoring 2015~2016
- Program Committee, IEEE International Conference on Healthcare Informatics 2015 (ICHI 2015) 2015
- Reviewer, JMIR Medical Informatics 2015
- Technical Program Committee, IEEE ChinaSIP 2015
- Committee, Knowledge and Data Mining Workgroup, AMIA, 2014~Present
- Co-chair, Big Data in Bioinformatics and Health Informatics Workshop at IEEE Big Data Conference 2014
- Organizing committee, Computing in Cardiology, 2014
- Organizing committee, Critical Data Marathon & Conference, 2014
- Program Committee, 8th International Conference on Body Area Networks, 2013
- Editorial Review Board, Artificial Intelligence Research (Journal), 2012~Present
- Committee, Association for Medical and Bio-Informatics, Singapore (AMBIS), 2011~2012
- Program Committee, International Conference on Data Mining, 2010~Present
- Co-Chair, Clinical Bioinformatics Symposium, Singapore, 2009~2010
- Reviewer, Critical Care Medicine 2017~2018
- Reviewer, Journal of Biomedical and Health Informatics, 2015
- Reviewer, IEEE Transactions on Biomedical Engineering, 2015

- Reviewer, Annals of Biomedical Engineering (Journal), 2011
- Reviewer, IEEE Engineering in Medicine and Biology Conference (EMBC), 2010~Present

TEACHING EXPERIENCE

- Course co-ordinator, “Advanced Statistical Learning”, SSHSPH, NUS since 2019
- Course co-ordinator, “Healthcare Analytics”, SSHSPH, NUS, since 2019
- Lecturer, “Introduction to Biostatistics and Data Analytics” since 2017
- Lecturer, “Public Health in Action” since 2017
- Instructor, “Business Analytics and Applications”, since 2015
- Invited lecturer for Computational Biology, SOC, NUS 2015
- Guest lecturer for the Course Health Informatics, Boston University, US 2014
- Course faculty of MIT course “HST 936 Global Health Informatics to Improve Quality of Care”, 2014
- Co-supervising a PhD student from University of Technology, Sydney, 2014
- Supervising 2 UROP students at MIT, 2014
- Supervised 1 master student, 19 undergraduate students, 4 polytechnic students and 7 Junior colleague students at Institute for Infocomm Research, A*STAR, Singapore, 2009~2012
- Part-time lecturer for the course “Circuit Analysis”, Nanyang Technological University, Singapore, 2009

INVITED TALKS & SEMINARS

- Invited Speaker, Health Science Center Seminar Series, Peking University 2021
- Invited Speaker, SCCM conference 2021
- Invited Speaker, 2021 Medical Devices Workshop, Taiwan FDA 2021
- Keynote Speaker, National Taiwan University Healthcare Datathon 2020
- Invited Speaker, AMIA 2020 2020
- Invited International Mentor, MIT-301 Hospital Beijing Datathon, since 2017
- Invited International Mentor, Taiwan Medical University Datathon, since 2019
- Invited International Mentor, National University of Taiwan Datathon, since 2019
- Invited Speaker, Huawei Big Data and Cloud Summit (https://event.huaweicloud.com/Singapore/views/en/index.html) , 2019
- Invited Speaker, Supercomputing Asia (https://www.sc-asia.org/2019/industry-speakers/#mengling), 2019
- Co-organizer, Datathon in Tokyo (<http://datathon-japan.jp/2019/>) since 2018
- Invited International Mentor, KoNECT International Conference (<http://datathon.konect.or.kr/>), Seoul, Korea since 2018
- Keynote Speaker, Thailand Healthcare AI workshop since 2018
- Panelist, AI SINGAPORE – FRANCE AI WORKSHOP, 2018
- Panellist, 1st Joint Symposium on AI in Medicine, AI Singapore, 2018
- “How Big Data and AI technology can improve our understanding of health and disease”, Tokyo Healthcare Analytics Symposium and Datathon 2018
- “Application of AI for healthcare” Big Data for Global Health conference, Shen Zhen , 2017
- “Datathon a new way to cultivate cross-disciplinary collaborations”, invited speaker, 2nd Singapore International Public Health Conference 2016
- “Medical Big Data Analytics and Management”, invited speaker, IEEE TENCON 2015
- “Integrate Heterogenous and Sparse Medical Data”, Singapore Health & Biomedical Conference 2015
- “Continuous Learning of Medical Data for Care Improvement”, National University of Singapore 2015
- “Big Data [Sorry] for Evidence-based Medicine”, Nanyang Technological University, 2015
- “The Story of MIMIC-II: Dataset for Critical Care”, Ministry of Health, Singapore 2014
- “Management and Analysis of Medical Big Data with In-memory Database and Dynamic Querying”, Knowledge Discovery and Data mining (KDD), 2014
- “Big Data [Sorry] in Healthcare”, National University of Singapore, 2014
- “Knowledge Discovery for Critical Care”, National Institute of Health, USA, 2013
- “Hands-on Experience with the MIMIC II Database: An Open-Access Database for Knowledge Discovery and Reasoning in Critical Care”, ACM Conference on Bioinformatics, Computational Biology and Biomedical Informatics (ACM-BCB), 2013
- “Introduction to the Multi-parameter Intelligent Monitoring in Intensive Care (MIMIC) database for critical care”, School of Computing, National University of Singapore, 2013

- “Mobile Health System to Improve Quality of Care in Resource-poor Settings: A Sana Story”, Institute of Infocomm Research, Singapore 2013
- “Biomedical Knowledge Discovery: A PhysioNet Story”, National University of Singapore, 2013
- “A Peace of Mind --- Story Telling Session with Mengling Feng”, Nanyang Technological University, 2013
- ”Short Course on Data Mining”, Pattern Recognition and Machine Learning Association (PREMIA), 2010~11

PASSIONS OUTSIDE RESEARCH

- Hip Hop dance. Have been dancing and teaching Hip Hop for over 10 years. Dance has become one of my way to express myself and to connect with others.
- Meditation has helped me to maintain a peaceful mind while facing various challenges in life.
- Sailing, skiing, deep sea diving and traveling

ACADEMIC REFERENCES

Prof. Roger Mark (Postdoctoral advisor)

Distinguished Professor in Health Sciences and Technology and Electrical Engineering and Computer Science
Massachusetts Institute of Technology
Phone: +1 617-253-7818 Email: rgmark@mit.edu

Prof. Leo Celi (Postdoctoral advisor)

Assistant Professor of Medicine, Harvard Medical School
Phone: +1 617-667-5864 Email: lceli@bidmc.harvard.edu

Prof. Peter Szolovitz (Postdoctoral collaborator)

Professor in the Department of Electrical Engineering and Computer Science (EECS) and the Institute of Medical Engineering and Science (IMES), Massachusetts Institute of Technology
Phone: +1 617-253-3476. Email: psz@mit.edu

Prof. Limsoon Wong (PhD advisor)

KITHCT Professor of Computer Science in School of Computing and Professor of Pathology in School of Medicine, National University of Singapore
Phone: +65-6516-2902. Email: wongls@comp.nus.edu.sg

Prof. Yap-Peng Tan (PhD advisor)

Chair of School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore
Phone: +65-6790-5872. Email: yptan@ntu.edu.sg

PEER-REVIEWED PUBLICATIONS

Book Chapters (7)

1. **Mengling Feng**, Editor for “AI Ops Competition”, Springer, 2021.
2. Ng, Dianwen, and **Mengling Feng**. "Medical Image Recognition: An Explanation and Hands-On Example of Convolutional Networks." In *Leveraging Data Science for Global Health*, pp. 263-284. Springer, Cham, 2020.
3. Liu, Siqi, Hao Du, and **Mengling Feng**. "Robust Predictive Models in Clinical Data—Random Forest and Support Vector Machines." In *Leveraging Data Science for Global Health*, pp. 219-228. Springer, Cham, 2020.
4. **Mengling Feng**, MIT Critical Care, Secondary Analysis of Electronic Health Records, Springer, 2016
5. **Mengling Feng**, Mohammad Ghassemi, “Communication Networks for Global Health”, Global Health Informatics, MIT Press 2016
6. **Mengling Feng**: “*Contrast Pattern Maintenance*”, Contrast Data Mining: Concepts, Algorithms and Applications, edited by Guozhu Dong and James Bailey, Chapman & Hall, 2014.
7. **Mengling Feng**, Jinyan Li, Guozhu Dong, Limsoon Wong: “*Maintenance of Frequent Patterns: A Survey*”, Post-Mining of Association Rules: Techniques for Effective Knowledge Extraction, edited by Yanchang Zhao, Chengqi Zhang, and Longbing Cao, IGI Global, May 2009.

Journal Papers (41)

1. Mengling Feng, et al. "Deep Learning Systems for Pneumothorax Detection on Chest Radiographs: A Multicenter External Validation Study." *Radiology: Artificial Intelligence*(2021): e200190.
2. Mengling Feng et al, "Federated learning: A collaborative effort to achieve better medical imaging models for individual sites that have small labelled datasets", *Quantitative Imaging in Medicine and Surgery* (IF 3.3), 2020.
3. Chong, Shu-Ling, Trung Kien Dang, Tsee Foong Loh, Yee Hui Mok, Mohamed Shirhan Bin Mohamed Atan, Eugene Montanez, Jan Hau Lee, and **Mengling Feng**. "Timing of tracheal intubation on mortality and duration of mechanical ventilation in critically ill children: A propensity score analysis." *Pediatric Pulmonology* (2020).
4. Liu, Siqi, Kay Choong See, Kee Yuan Ngiam, Leo Anthony Celi, Xingzhi Sun, and **Mengling Feng**. "Reinforcement Learning for Clinical Decision Support in Critical Care: Comprehensive Review." *Journal of medical Internet research* 22, no. 7 (2020): e18477.
5. Zhang, Valencia Ru-Yan, Aaron Shu Jeng Woo, Christina Scaduto, Maria Teresa Kasunuran Cruz, Yan Yuan Tan, Hao Du, **Mengling Feng**, and Kewin Tien Ho Siah. "A Systematic Review on the Definition and Predictors of Severe *Clostridioides difficile* Infection." *Journal of Gastroenterology and Hepatology*, 2020.
6. **Mengling Feng** (co-senior author) et al. "The impact of high frequency oscillatory ventilation on mortality in paediatric acute respiratory distress syndrome." *Critical Care* (IF 7.4) 24.1 (2020): 31.
7. **Mengling Feng**, et al. "Evaluation of Combined Artificial Intelligence and Radiologist Assessment to Interpret Screening Mammograms." *JAMA Network Open* (IF 5.03) 3.3 (2020): e200265-e200265.
8. Ng, Sheryl Hui Xian, et al. "Characterising and predicting persistent high-cost utilisers in healthcare: a retrospective cohort study in Singapore." *BMJ open* (IF 2.4) 10.1 (2020).
9. Willem van den Boom, Michael Hoy, Jagadish Sankaran, Mengru Liu, Haroun Chahed, **Mengling Feng**, "The Search for Optimal Oxygen Saturation Targets in Critically Ill Patients: Observational Data From Large ICU Databases", *CHEST* (IF 9.66), 2019.
10. Colin T Phillips, Junmei Wang, Leo Anthony Celi, Zhengbo Zhang, **Mengling Feng**; "Association of hypokalemia with an increased risk for medically treated arrhythmias", *PLOS One* (IF 2.8),14(6), 2019
11. **Mengling Feng**, Lior Fuchs, Victor Novack, Joon Lee, Jonathan Taylor, Daniel Scott, Michael Howell, Leo Celi, Daniel Talmor, "The effect of ARDS on survival: do patients die from ARDS or with ARDS?", *Journal of Intensive Care Medicine* (IF 3.3), 34(5)2019
12. Heng Ngee Ng Raphael, Ju-Ming Wong Judith, Chong Shu-Ling, Tsee Foong Loh, Yee Hui Mok, Mohamed Shirhan Bin Mohamed Atan, Eugene Montanez, **Mengling Feng** "VITAL SIGNS IN PREDICTING EXTUBATION FAILURE IN CHILDREN: A SINGLE-CENTER STUDY", *Critical Care Medicine* (IF 7.4), 47, 2019
13. **Mengling Feng** et al, Assessment of Intensive Care Unit Laboratory Values That Differ From Reference Ranges and Association with Patient Mortality and Length of Stay, *JAMA Network Open* (IF 5.03), In press.
14. **Mengling Feng** et al Transthoracic Echocardiography and Mortality in Sepsis: Analysis of the MIMIC-III Database. *Intensive Care Medicine* (IF 12.1). 2018 Jun;44(6):884-892.
15. **Mengling Feng**, et al. "A New Model for Risk Stratification of Patients With Acute Pulmonary Embolism." *Clinical and Applied Thrombosis/Hemostasis* (IF 2.4) 24.9_suppl (2018): 277S-284S.
16. Lokhandwala, Sharukh, Ned McCague, Abdullah Chahin, Braiam Escobar, **Mengling Feng**, Mohammad M. Ghassemi, David J. Stone, and Leo Anthony Celi. "One-year mortality after recovery from critical illness: A retrospective cohort study." *PloS one* (IF 2.8) 13, no. 5 (2018): e0197226.
17. Hao Du, Corey Markus, Michael Metz, **Mengling Feng (co-senior author)**, Tze Ping Loh,. Derivation of outcome-based pediatric critical values. *Journal of Chemical Physics* (IF 2.95), Mar 7;149(4):324-331, 2018
18. Fuchs, Lior, Matthew Anstey, **Mengling Feng**, Ronen Toledano, Slava Kogan, Michael D. Howell, Peter Clardy, Leo Celi, Daniel Talmor, and Victor Novack. "Quantifying the mortality impact of do-not-resuscitate orders in the ICU." *Critical care medicine* (IF 7.05) 45, no. 6 (2017): 1019-1027.
19. **Mengling Feng (co-first author)** et al. The Effect of ARDS on Survival: Do Patients Die From ARDS or With ARDS? *Journal of Intensive Care Medicine* (IF 3.26), in press.
20. **Mengling Feng** et al. Robust Causality Analysis of Non-Stationary Multivariate Physiological Time Series, *IEEE Transaction on Biomedical Engineering* (IF 2.5), in press.
21. Wu M, Ghassemi M, **Mengling Feng**, Celi LA, Szolovits P, Doshi-Velez F. Understanding vasopressor intervention and weaning: Risk prediction in a public heterogeneous clinical time series database. *J Am Med Inform Assoc (JAMIA)* (IF 3.43), Oct. 2016.
22. **Mengling Feng (equal contribution)**, Aboab J, Celi LA, Charlton P, Ghassemi M, Marshall DC, Mayaud L, Naumann T, McCague N, Paik KE, Pollard TJ, Resche-Rigon M, Saliccioli JD, Stone DJ. A Datathon Model To Support Cross-disciplinary Collaboration. *Science Translational Medicine* (IF 15.84), 8(333):333-8, Apr. 2016.
23. Alistair E.W. Johnson¹, Tom J Pollard¹, Shen Lu, Li-wei Lehman, **Mengling Feng**, Mohammad Ghassemi, Benjamin Moody, Peter Szolovits, Leo Anthony Celi¹, Roger G. Mark. MIMIC-III, a freely accessible critical care database. *Scientific Data*, Nature, 2016 (accepted).

24. Kenneth P. Chen, Susan Cavender, Joon Lee, **Mengling Feng**, Roger G. Mark, Leo Anthony Celi, Kenneth J. Mukamal, and John Danziger. Peripheral Edema, Central Venous Pressure, and Risk of AKI in Critical Illness. *Clinical Journal of the American Society of Nephrology* (IF: 4.61). in press.
25. Lynch KE, Ghassemi F, Flythe JE, **Mengling Feng**, Ghassemi M, Celi LA, Brunelli SM. Sodium modeling to reduce intradialytic hypotension during haemodialysis for acute kidney injury in the intensive care unit. *Nephrology* (IF: 2.08), in-press.
26. John Danziger, Ken Chen, Joon Lee, **Mengling Feng**, Roger G Mark, Leo Celi, Kenneth J Mukamal, Obesity, Acute Kidney Injury, and Mortality in Critical Illness. *Critical Care Medicine* (IF 6.312), Oct 22, 2015.
27. **Mengling Feng (co-first author)** et al. The Association Between Indwelling Arterial Catheters and Mortality in Hemodynamically Stable Patients With Respiratory Failure: A Propensity Score Analysis. *CHEST* (IF 7.5), 148(6):1470-6, 2015.
28. Liu, Guimei and Zhang, Haojun and **Feng, Mengling** and Wong, Limsoon and Ng, See-Kiong. Supporting Exploratory Hypothesis Testing and Analysis ACM Transactions on Knowledge Discovery from Data (TKDD) (IF 1.15), 9(4) 1556-4681, 2015
29. Ghosh, S. and **Mengling Feng** and Nguyen, H. and Li, J. Hypotension Risk Prediction via Sequential Contrast Patterns of ICU Blood Pressure , *IEEE Journal of Biomedical and Health Informatics* (IF 1.5), 2015
30. Chen, K. P., Lee, J., Mark, R. G., **Mengling Feng**, Celi, L. A., Malley, B. E. and Danziger, J. Proton pump inhibitor use is not associated with cardiac arrhythmia in critically ill patients. *Journal of Clinical Pharmacy* (IF 2.5), 55: 774–779 2015
31. Emma J de Louw, Pepijn O Sun, Joon Lee, **Mengling Feng**, Roger G Mark, Leo Anthony Celi, Kenneth J Mukamal, John Danziger. Increased incidence of diuretic use in critically ill obese patients *Journal of critical care* (IF 2.2), 30(3): 619-623
32. Joseph Paonessa, Thomas Brennan, Marco Pimentel, Daniel Steinhaus, **Mengling Feng**, Leo Anthony Celi, Hyperdynamic left ventricular ejection fraction in the intensive care unit. *Critical Care* (IF 4.48), 19:288, 2015.
33. Mah TL, Yap XNA, Limvipuvadh V, Li N, Srinath S, Kuralmani V, **Feng Mengling**, Liem N, Adhikari S, Yong WP, Soo RA, Maurer-Stroh S, Eisenhaber F, Tong JC. Novel SNP improves differential survivability and mortality in non-small cell lung cancer patients. *BMC Genomics* (IF 4.04) 2014, 15(Suppl 9):S20.
34. **Mengling Feng (equal contribution)**, et al. Making Big Data Useful for Health Care: A Summary of the Inaugural MIT Critical Data Conference. *JMIR Medical Informatics* (IF 4.7), 2(2): e22, 2014.
35. Andre Dejam, Brian E Malley, Frederico Cismondi, Shinhyuk Park, Saira Samani, Zahra Samani, Duane S Pinto, Leo A Celi and **Mengling Feng**. The Effect of Age and Clinical Circumstances on the Outcome of Red Blood Cell Transfusion in the Critically Ill Patients. *Critical Care* (IF 4.72), 18 (4): 487, 2014.
36. Marco A. F. Pimentel, Thomas Brennan, Li-wei Lehman, Nicolas Kon Kam King, Beng Ti Ang, **Mengling Feng (corresponding author)**: Outcome Prediction for Traumatic Brain Injury Patients with Dynamic Features from Intracranial Pressure and Arterial Blood Pressure Signals: A Gaussian Process Approach. *ACTA NEUROCHIRURGICA supplement* (IF 1.546), in press.
37. Yue Wang, Guimei Liu, **Mengling Feng**, Limsoon Wong: Response: an empirical comparison of several recent epistatic interaction detection methods. *Bioinformatics* (IF 6.911) 28(1): 147-148, 2012.
38. Yue Wang, Guimei Liu, **Mengling Feng** and Limsoon Wong. “An Empirical Comparison of Several Recent Epistatic Interaction Detection Methods.” *Bioinformatics* (IF 6.911), 27(21): 2936-2943, 2011.
39. **Mengling Feng**, Loy Liang Yu, Chin Pei Loon, Zhang Zhuo, Vellaisamy Kuralmani, Guan Cuntai, Nicolas Kon Kam King, Pang Boon Chuan, Ang Beng Ti: “Go Green! Reusing Brain Monitoring Data Containing Missing Values: A Feasibility Study with Traumatic Brain Injury Patients”, *Acta Neurochirurgica Supplement* (IF 1.546), Vol 114, 51-59, 2012.
40. **Mengling Feng**, Guozhu Dong, Jinyan Li, Yap-Peng Tan, Limsoon Wong: “Pattern Space Maintenance for Data Updates and Interactive Mining”. *Computational Intelligence* (IF 1.0) 26(3): 282-317 (2010).
41. **Mengling Feng**, Yap-Peng Tan: “Contrast adaptive binarization of low quality document images”. *IEICE Electronic Express* (IF 0.37) 1(16): 501-506 (2004) .

Conference Papers (27)

1. Saini, Shreshth, Young Seok Jeon, and Mengling Feng. "B-SegNet: branched-SegMentor network for skin lesion segmentation." *Proceedings of the Conference on Health, Inference, and Learning*. 2021.
2. Chang Jiangeng, Dai Yao and Feng Mengling, “Learn Long-tailed Tweet Data by Using GBDT Method”, *CIKM 2020* (accepted)
3. Du, Hao, Jiashi Feng, and **Mengling Feng**. "Zoom in to where it matters: a hierarchical graph based model for mammogram analysis." *AAAI workshop*, 2020.
4. Chiew CJ, Wang H, Ong ME, Wong TH, Koh ZX, Liu N, **Feng Mengling**. Serial Heart Rate Variability Measures for Risk Prediction of Septic Patients in the Emergency Department. In *AMIA Annual Symposium Proceedings 2019* (Vol. 2019, p. 285). American Medical Informatics Association.

5. David Liang Tai Wong, Selva Muthu Kumaran Sathappan, Jufeng Yu, Chun Huat Heng, Pipin Kojodjojo, **Mengling Feng**, "Continuous ECG Monitoring Trial for Outpatient–Patient Receptiveness and Signal Accuracy", International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), 2019
6. Huang, Dianwen, and **Mengling Feng**. "Understanding Deep Convolutional Networks for Biomedical Imaging: A Practical Tutorial." *2019 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*. IEEE, 2019.
7. Hao Du, Mohammad Ghassemi, **Mengling Feng**. *The Effects of Deep Network Topology on Mortality Prediction*. Accepted in IEEE EMBC, 2016.
8. Marzyeh Ghassemi, Marco Pimentel, Tristan Naumann, Thomas Brennan, David Clifton, Peter Szolovits, **Mengling Feng (corresponding author)**. "A Multivariate Timeseries Modeling Approach to Severity of Illness Assessment and Forecasting in ICU with Sparse, Heterogeneous Clinical Data". AAAI, 446-453, 2015.
9. **Mengling Feng**, Mohammad Ghassemi, Thomas Brennan, John Ellenberger, Ishrar Hussain, Roger Mark. Management and Analysis of Biomedical Big Data with Cloud-based In-Memory Database and Dynamic Querying (Tutorial). KDD, 2014.
10. Shameek Ghosh, **Mengling Feng**, Hung Nguyen and Jinyan Li. Predicting Heart Beats using Co-occurring Constrained Sequential Patterns, *Computing in Cardiology*, 265-268, 2014.
11. Shameek Ghosh, **Mengling Feng**, Hung Nguyen, Jinyan Li. Risk Prediction for Acute Hypotensive Patients by Using Gap Constrained Sequential Contrast Patterns, *AMIA*, 1748-1757, 2014.
12. Mengling Feng, Mohammad Ghassemi, Thomas Brennan, John Ellenberger, Ishrar Hussain, Roger Mark. Systems Demonstration: Big Data for Critical Care with Cloud-based In-Memory Database, *AMIA* 2014.
13. Bin Han, Michael Muma, **Mengling Feng**, and Abdelhak M. Zoubir. "An Online Approach For LCP Forecasting Based On Signal Decomposition And Robust Statistics". *Proceedings of 38th International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, page 6239 2013.
14. **Mengling Feng**, Liang Yu Loy, Kelvin Sim, Clifton Phua, Feng Zhang, Cuntai Guan. "Artifact Correction with Robust Statistics for Non-Stationary Intracranial Pressure Signal Monitoring." *Proceedings of 21st International Conference on Pattern Recognition (ICPR)*, page 557--560, 2012.
15. Feng Zhang, **Mengling Feng** (corresponding author), Liang Yu Loy, Zhuo Zhang, Cuntai Guan. "Online ICP Forecast for Patients with Traumatic Brain Injury". *Proceedings of 21st International Conference on Pattern Recognition (ICPR)*, page 37--40, 2012.
16. **Mengling Feng**, Zhuo Zhang, Cuntai Guan, David Roi Hardoon, Nicolas Kon Kam King, Boon Chuan Pang, Beng Ti Ang. "Utilization of Temporal Information for Intracranial Pressure Development Trend Forecasting in Traumatic Brain Injury". *Proceedings of 33rd International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, 2012 (accepted).
17. **Mengling Feng**, Liang Yu Loy, Feng Zhang, Cuntai Guan. "Artifact Removal for Intracranial Pressure Monitoring Signals: A Robust Solution with Signal Decomposition". *Proceedings of 33rd International Conference of the IEEE Engineering in Medicine and Biology Society*, 2011.
18. **Mengling Feng**, Zhuo Zhang, Feng Zhang, Yu Ge, Liang Yu Loy, Kuralmani Vellaisamy, Wenyan Guo, Pei Loon Chin, Nicolas Kon Kam King, Beng Ti Ang, Cuntai Guan. "iSyNCC: An Intelligent System for Patient Monitoring & Clinical Decision Support in Neuro-Critical-Care". *Proceedings of 33rd International Conference of the IEEE Engineering in Medicine and Biology Society*, 2011.
19. Feng Zhang, **Mengling Feng**, Sinno Jialin Pan, Liang Yu Loy, Wenyan Guo, Zhuo Zhang, Pei Loon Chin, Cuntai Guan, Nicolas Kon Kam King, Beng Ti Ang. "Artificial Neural Network Based Intracranial Pressure Mean Forecast Algorithm for Medical Decision Support". *Proceedings of 33rd International Conference of the IEEE Engineering in Medicine and Biology Society*, 2011.
20. Sujit Kumar Sahoo, Wenmiao Lu, Sintiani Dewi Teddy, Desok Kim, **Mengling Feng**. "Detection of Atrial Fibrillation from Non Episodic ECG Data: A Review of Methods". *Proceedings of 33rd International Conference of the IEEE Engineering in Medicine and Biology Society*, 2011.
21. Guimei Liu, **Mengling Feng**, Yue Wang, Limsoon Wong, See-Kiong Ng, Tzia Liang Mah, Edmund Jon Deon Lee: "Towards exploratory hypothesis testing and analysis", *ICDE* 2011: 745-756.
22. **Mengling Feng**, Loy Liang Yu, Chin Pei Loon, Zhang Zhuo, Vellaisamy Kuralmani, Guan Cuntai, Nicolas Kon Kam King, Pang Boon Chuan, Ang Beng Ti: "Go Green! A Strategic Guide to Reuse Brain Monitoring Data with Missing Values", *International Conference on Intracranial Pressure and Brain Monitoring*, 2010.
23. Thanh-Son Ngo, **Mengling Feng**, Guimei Liu, Limsoon Wong: "Efficiently Finding the Best Parameter for the Emerging Pattern-Based Classifier PCL". *PAKDD* 2010: 121-133.
24. **Mengling Feng**, Jinyan Li, Limsoon Wong, Yap-Peng Tan: "Negative Generator Border for Effective Pattern Maintenance". *ADMA* 2008: 217-228.
25. **Mengling Feng**, Guozhu Dong, Jinyan Li, Yap-Peng Tan, Limsoon Wong: "Evolution and Maintenance of Frequent Pattern Space When Transactions Are Removed". *PAKDD* 2007: 489-497.

26. Haiquan Li, Jinyan Li, Limsoon Wong, **Mengling Feng**, Yap-Peng Tan: “*Relative risk and odds ratio: a data mining perspective*”. PODS 2005: 368-377.
27. **Mengling Feng**, Yap-Peng Tan: “*Adaptive binarization method for document image analysis*”. ICME 2004: 339-342.

Pre-Print Papers (2)

1. Liu, Siqi, Kee Yuan Ngiam, and **Mengling Feng**. "Deep Reinforcement Learning for Clinical Decision Support: A Brief Survey." *arXiv preprint arXiv:1907.09475* (2019).
2. Pan, Ziyuan, Hao Du, Kee Yuan Ngiam, Fei Wang, Ping Shum, and **Mengling Feng**. "A Self-Correcting Deep Learning Approach to Predict Acute Conditions in Critical Care." *arXiv preprint arXiv:1901.04364* (2019).