Sen (Forrest) Yang

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EDUCATION

Rutgers University, the State University of New Jersey Piscataway, NJ
• M.S & Ph.D., in Electrical & Computer Engineering, GPA 3.9/4.0, GRE 1510, TOEFL 103 Sept 2013 - Present

Nanjing University of Posts and Telecommunications, China Nanjing, China
• B.A., in Communication Engineering Sept 2008 – June 2012

WORKING EXPERIENCE

Huawei Technologies Co. Ltd. Shenzhen, China
• Software Engineer in GSM, LTE network maintenance Aug 2012 – June 2013

Rutgers University & Children's National Medical Center (CNMC) Piscataway, NJ & Washington, D.C.
• Research Assistant Aug 2014 - Present

RESEARCH AND PROJECTS

1. Smart Trauma Resuscitation Decision Support System *NIH Project, Rutgers & CNMC*, Aug 2014 - Present
• During trauma resuscitation, multidisciplinary teams rapidly identify and treat potentially life threatening injuries, then develop and execute a short-term management plan for the identified injuries. To improve medical team performance and reduce the adverse outcomes on the patients, we are developing a computerized decision support system for trauma resuscitation and other fast-paced, high-risk critical care settings that monitors workflow for errors and then alerts to these errors, allowing remedial actions to be taken to prevent adverse outcomes.
• Develop knowledge-based workflow models and repair models using data
• Identify and analyze the workflow deviations using process mining techniques
• Develop a computerized decision support system that identifies and provides real-time alerts of risk conditions to medical team

2. Recommender System for Medical Treatment Procedures (VIT-PLA 2.0) *NIH Project ,Rutgers*, Sept 2016 - Present
• A novel time-warping based pairwise process trace similarity measure was proposed
• State-of-art clustering algorithms were tested and a novel algorithm to decide the number of clusters was proposed
• A novel algorithm for calculating process cluster prototype was proposed
• Regression model was used for treatment procedure recommendation

3. Workflow Model Mining based on State-Splitting HMM *NIH Project, Rutgers*, Sept 2016 - Present
• We proposed an alignment based state-splitting HMM that can greatly speed up the HMM training process
• The workflow model discovered using State-Splitting HMM algorithm can handle duplicate activities

4. Visual Interactive Tool of Process Log Analysis (VIT-PLA) *NIH Project, Rutgers*, Sept 2015 – Sept 2016
• Cluster process traces, Use trace alignment algorithm to find cluster prototype, and visualize the results.
• Use multinomial logistic regression to discover the association between process clusters and process context attributes
• Acquire knowledge from cluster prototypes and regression results

5. Sudoku Solver (Java, Java Swing) *Course Project, Rutgers*, Sept 2014 – Dec 2014
• A Java-app to solve Sudoku with backtracking, simulated annealing, dancing links and our novel algorithm.

6. NBA Game Winner Prediction (Python, SQL**)** *Course Project, Rutgers*, Jan 2014 – May 2014
• Crawl ESPN website for game data and player data in each game
• Predict the winner of each NBA game using different classifiers

7. Web Development for Stock Forecast (PHP, JS, HTML, CSS**)** *Course Project, Rutgers*, Jan 2014 – May 2014
• Collect historic stock data from Yahoo finance
• Predict stock price using HMM, Curve Fitting, and ARMA models

8. Health Monitoring Analytics based on Twitter (Android, Java, MongoDB**)** *Course Project, Rutgers*, Sept 2013 – Dec 2013
• Query tweets that correlated to health and fitness using Twitter APIs
• Data visual analytics in Android app

RECENT PUBLICATIONS

1. A Data-driven Process Recommender Framework
Sen Yang, Xin Dong, Leilei Sun, Yichen Zhou, Richard A. Farneth, Hui Xiong, Randall S. Burd and Ivan Marsic 2017 Submitted
Submitted to 2017 ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD 2017)

2. Workflow Association Mining Using Deep Learning
Moliang Zhou, Xinyu Li, Yanyi Zhang, **Sen Yang**, Shuhong Chen, Richard A. Farneth, Ivan Marsic and Randall S. Burd
Submitted to 2017 ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD 2017)

2017 Submitted

3. Automatic Workflow Capture and Analysis for Improving Trauma Resuscitation Outcomes
Sen Yang
Doctoral Consortium in 2016 IEEE International Conference on Health Informatics (ICHI 2016)

2016 Accepted

4. VIT-PLA: Visual Interactive Tool for Process Log Analysis
Sen Yang, Xin Dong, Moliang Zhou, Shuhong Chen, Ivan Marsic, and Randall S. Burd
KDD 2016 Workshop on Interactive Data Exploration and Analytics (IDEA 2016)

2016 Accepted

5. Duration-Aware Alignment of Process Traces.
Sen Yang, Moliang Zhou, Rachel Webman, JaeWon Yang, Aleksandra Sarcevic, Ivan Marsic, and Randall S. Burd
Industrial Conference on Data Mining. Springer International Publishing, 2016

2016 Accepted

DATA VISUAL ANALYTIC TOOLS (DEVELOPED AND LEAD BY ME)

Visual Interactive Tool of Process Log Analysis (VIT-PLA)
 • JAVA-App (https://forrestyang119.github.io/)

Developed in 2017

VIT-PLA 2.0
• Web-App (http://34.198.151.101/test.html, prototype for testing purpose)

Developed in 2016

RESEARCH INTERESTS

• Data Mining and Knowledge Discovery, Algorithms, Process Mining, Software Engineering in Data Visual Analytics, Deep Learning in Big Data Analytics. (Specialty: Temporal Event Sequences, Process Logs, Workflow Data)

RELATED COURSES

• Machine Learning, Data Mining, Data Struct & Algo, Data Analytics, Softwr Engg, Web App Design, Mobile App Design, Computer Architecture, Linear Algebra, Regression Models (Coursera)

TECHNICAL STRENGTH (SORTED BY PROFICIENCY)

Languages	Java, Matlab, R, Python, Android, Java Swing, C++/C, PHP, JSP, JavaScript, HTML, CSS
Database Systems	MySQL, Oracle SQL Database, Mongo DB, AWS Could SQL, Google Cloud SQL
Data Mining Skills	Data Visualization, Process Mining, Web Crawling
Operating Systems	Win 10, MacOS Sierra, Ubuntu 16
Enterprise Tools	Office (skilled in macro), Eclipse, Matlab, Netbeans, RStudio, Visual Studio, Latex

ADVISORS
Ivan Marsic (www.ece.rutgers.edu/~marsic/)
Hui Xiong (http://datamining.rutgers.edu/)