

# Sen (Forrest) Yang

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## EDUCATION

<b>Rutgers University, the State University of New Jersey</b> • M.S & Ph.D., in Electrical & Computer Engineering, GPA 3.9/4.0, GRE 1510, TOEFL 103	Piscataway, NJ Sept 2013 - Present
<b>Nanjing University of Posts and Telecommunications, China</b> • B.A., in Communication Engineering	Nanjing, China Sept 2008 – June 2012

## WORKING EXPERIENCE

<b>Huawei Technologies Co. Ltd.</b> • Software Engineer in GSM, LTE network maintenance	Shenzhen, China Aug 2012 – June 2013
<b>Rutgers University &amp; Children's National Medical Center (CNMC)</b> • Research Assistant	Piscataway, NJ & Washington, D.C. Aug 2014 - Present

## RESEARCH AND PROJECTS

<b>1. Smart Trauma Resuscitation Decision Support System</b> • 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	<i>NIH Project, Rutgers &amp; CNMC, Aug 2014 - Present</i>
<b>2. Recommender System for Medical Treatment Procedures (VIT-PLA 2.0)</b> • A novel 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 representative treatment procedure was proposed • Regression model was used for treatment procedure recommendation	<i>NIH Project, Rutgers, Sept 2016 - Present</i>
<b>3. Workflow Model Mining based on State-Splitting HMM</b> • 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	<i>NIH Project, Rutgers, Sept 2016 - Present</i>
<b>4. Visual Interactive Tool of Process Log Analysis (VIT-PLA)</b> • 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	<i>NIH Project, Rutgers, Sept 2015 – Sept 2016</i>
<b>5. Sudoku Solver</b> (Java, Java Swing) • A Java-app to solve Sudoku with backtracking, simulated annealing, dancing links and our novel algorithm.	<i>Course Project, Rutgers, Sept 2014 – Dec 2014</i>
<b>6. NBA Game Winner Prediction</b> (Python, SQL) • Crawl ESPN website for game data and player data in each game • Predict the winner of each NBA game using different classifiers	<i>Course Project, Rutgers, Jan 2014 – May 2014</i>
<b>7. Web Development for Stock Forecast</b> (PHP, JS, HTML, CSS) • Collect historic stock data from Yahoo finance • Predict stock price using HMM, Curve Fitting, and ARMA models	<i>Course Project, Rutgers, Jan 2014 – May 2014</i>
<b>8. Health Monitoring Analytics based on Twitter</b> (Android, Java, MongoDB) • Query tweets that correlated to health and fitness using Twitter APIs • Data visual analytics in Android app	<i>Course Project, Rutgers, Sept 2013 – Dec 2013</i>

## RECENT PUBLICATIONS

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

*Submitted to 2017 ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD 2017)*

## 3. Automatic Workflow Capture and Analysis for Improving Trauma Resuscitation Outcomes

**Sen Yang** 2016 Accepted

*Doctoral Consortium in 2016 IEEE International Conference on Health Informatics (ICHI 2016)*

## 4. VIT-PLA: Visual Interactive Tool for Process Log Analysis

**Sen Yang**, Xin Dong, Moliang Zhou, Shuhong Chen, Ivan Marsic, and Randall S. Burd 2016 Accepted

*KDD 2016 Workshop on Interactive Data Exploration and Analytics (IDEA 2016)*

## 5. Duration-Aware Alignment of Process Traces.

**Sen Yang**, Moliang Zhou, Rachel Webman, JaeWon Yang, Aleksandra Sarcevic, Ivan Marsic, and Randall S. Burd 2016 Accepted

*Industrial Conference on Data Mining. Springer International Publishing, 2016*

### 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)

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

### ADVISOR

Ivan Marsic ([www.ece.rutgers.edu/~marsic/](http://www.ece.rutgers.edu/~marsic/))