Zhengxing Chen

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EDUCATION

Northeastern University Boston, MA

Candidate for Ph.D. of Computer Science (GPA: 3.5/4) Sept. 2013 – June 2018 (Expected)

Research Interest*:* Data Analysis especially on action sequence data

Relevant Courses: Machine Learning, Data Mining Technologies, Statistics for Big Data, Complexity and Optimization, Intensive Computer Systems and Advanced Algorithm

Beijing University of Posts & Telecommunications Beijing, China

Bachelor of Engineering in Information Engineering (GPA: 3.5/4) Sept. 2009 – July 2013

Relevant Courses: Information Theory, Probability

PUBLICATIONS

- Truong-Huy D. Nguyen, **Zhengxing Chen**, Magy Seif El-Nasr. (2014). Analytics-based AI-Techniques for Better Gaming Experience. Game AI.
- Kabakov, M., Canossa, A., Seif El-Nasr, M., Badler, J. B., Colvin, R. C., Tignor, S., **Chen, Z.**, Asarsa, K. (2014). A bottom-up method for developing a trait-based model of player behavior. Work In Progress, CHI Play.

WORK EXPERIENCE

Playable Innovative Technologies Lab at Northeastern University, Boston, MA

Research Assistant Jan 2014 – Now

Data Mining and Machine Learning Algorithms for Game Logs

- Implemented BIDE+ and GSP algorithms in Java on player action logs to extract common behavioral patterns. Selected features using PCA and logistic regression with L1 regularization. Wrote Matlab code to implement ECOC algorithm for multi-class prediction. Achieved more than 90% accuracy of predicting certain player profiles.
- Used R to process 100 player profiles and apply Archetypal Analysis to cluster players. Successfully found correlations between temporal/spatial game behaviors and certain personality profiles.
- Mathematically modelled player tendency of choosing dialogues with NPCs, such as topic-factorized ideal point estimation model and multi-labelling model.
- Used a Hierarchical Dirichlet Process Mixture Model to analyze evolution of 10,000+ game literatures within last decade.

Data Collection and Database

- Wrote Java crawler for crawling 10,000+ academic literatures. Wrote MongoDB script for query and maintenance.
- Set up MongoDB databases on AWS server for remote telemetry data storage.

Data Visualization

- Used D3 library to plot Sankey Diagram for visualizing network evolution of game literatures.
- Used Matlab/Plotly to plot game trace heatmaps to visualize temporal-spatial behaviors.
- Used Java to implement frequent pattern mining algorithms to support real-time query in a game trace similarity visualization system

Teaching Assistant for Graduate-Level Algorithm Course Sep 2013 – Apr 2014

- Coordinated in-class and offline discussions and debates covering the topics of dynamic programming, information theory and NP completeness
- Presented an one-hour lecture about method coverage problems to a class of 30 students
- Evaluated homework of both mathematical calculation and code implementation

• TECHNICAL SKILLS

- **Programming Skills:** Proficient in Java, Python and R; some knowledge in MatLAB, SQL, MongoDB, Excel, Javascript and XML. Implemented numerous ML algorithms in Java including SMO, ECOC, one hidden layer neural network (back propagation), RBM, active learning, AdaBoost, DBSCAN, TF-IDF, LDA, GSP, BIDE+ and network evolution algorithms.
- **Certificate:** MongoDB Certified Developer (Anticipated Date: April 28, 2015)

  Operating Systems: Windows, Ubuntu

SELECTED EXPERIENCE

Citation Prediction in Bibliography Network

Course Project of Data Mining Technologies, Northeastern University, MA Sep – Dec, 2014

- Implemented discriminative term bucket and meta path-based feature building algorithm in Java for citation prediction
- Implemented TF-IDF algorithm in Java to calculate document similarity
- Used logistic regression with L1 regularization as prediction model in order to prevent overfitting, select features and achieve tractable computation efficiency. Achieved 0.06118 mean average precision to predict new papers' citation from 2 million old paper candidates.

Reality-Augmented Mobile Exer-Game

Course Project of Mobile Application Development, Northeastern University, MA Sep - Dec, 2013

- Developed a reality-augmented Android game in Java which promotes indoors exercise
- Programmed OpenGL codes to render animations of game elements
- Utilized Android OpenCV library to achieve real-time color blob detection in the game
- Designed and implemented an algorithm to detect jump movement from raw sensor data

Mobile Application for Healthy Habit Development in Social Networks

Course Project of Human Computer Interaction, Northeastern University, MA Mar - Apr, 2014

- Conducted ethnographic observation, storyboard and paper prototyping to survey user preferences
- Developed an mobile application which supports sharing multimedia information with friends in social networks to raise peer support and help develop healthy habits

AWARDS

- **2012 Intel Cup National Undergraduate Electronic Design Contest.** Second Class Prize. 2012
- **Scholarship of BUPT University.** Second Class Prize. (Three times) 2012, 2011, 2010
- **Samsung Campus APP Development Competition.** Excellence Award. 2011

REFERENCES

Magy Seif El-Nasr m.seifel-nasr@neu.edu

Associate Professor, Director of the Game Design Program, Director of Game, Educational Programs and Research, College of Arts, Media and Design & College of Information and Computer Science, Northeastern University

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