ZHENGXING CHEN

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Education

Northeastern University
PhD, Computer Science, expected 2018.

Beijing University of Posts & Telecommunications
BA, Information Engineering, 2013. GPA: 3.6/4.0 (Top 10%)

Experience

Stubhub, eBay Inc.
Data Scientist Intern. Boston, 2016.8 – 2016.11 (ongoing)
Analyze and optimize ranking of secondary-market tickets. Utilize machine learning pair-wise ranking algorithms and log-linear regression model.

Electronic Arts
Data Scientist Intern. Redwood City, 2016.5 – 2016.8
Proposed a novel matchmaking system optimized for player engagement in multiplayer video games. Utilized perfect matching algorithms, online learning skill models and predictive churn models.

Video Game Lab, Northeastern University
Research Assistant. 2014.1 - now
Use data mining/machine learning/statistical models for game analytics, including player clustering, in-game behavior prediction, churn analysis and video game outcome prediction.

China Next-Generation Network Center, Tsinghua University
Research Assistant. 2012 - 2013
Participated in developing nationwide mobile application automatic testing platform.

Skills

Python, Java, R

MongoDB, SQL

MapReduce, Spark, Hive

Scikit-Learn, Pandas, Theano, PySpark

Projects

Secondary-Market Tickets Ranking

- Utilized machine learning pairwise ranking algorithms to optimize the ranking order of secondary-market tickets
- Utilized log-linear regression model to evaluate tickets' price-performance ratio

Engagement-Optimized Matchmaking

- Proposed a novel matchmaking system optimized for player engagement
- Utilized graph perfect matching algorithms, skill models and churn models to implement the system prototype
- Ran simulation with 10% more player retained compared to existing matchmaking methods

Multi-player Video Game Outcome Prediction

- Used logistic regression to predict League of Legends game outcomes based on player match history (17K players and 5 million matches)
- Designed a latent-factor model to model player/champion strength/weakness.

- Implemented both local and MapReduce versions of Stochastic Gradient Descent/L-BFGS to train the model by MLE.

Detect Academia Game Community Evolution

- Co-word and co-venue analysis on identify major research themes and distinct communities, with a total of 8,207 articles and 21,552 unique keywords being analyzed.
- Implemented advanced topic modelling to form temporal article clusters in order to understand game community evolution.

Links between Player Real World Profiles and In-Game Actions

- Behavioral feature extraction using frequent pattern mining algorithms from logs of 200 players playing an RPG game.
- Used logistic regression with regularization to predict player real world profiles (e.g., gender, game experience, etc.) based on in-game actions.
- Also vice versa, predicted player in-game actions using their real world information.

Graph Mining – Paper Citation Prediction

- Used various algorithms (e.g., Page Rank, TFIDF) to extract features of bibliographical graphs.
- Trained logistic regression model with regularization to predict existence of links in bibliography networks.
- Used MongoDB to store, query and manage 200 GB documents.

Debug, a Health-Promotion Mobile Game

- Developed an Android game that promotes people to walk by "squashing" virtual bugs in camera screens.
- Used OpenCV for object detection and OpenGL to render virtual game elements.
- Published on Google Store.

Publication

Chen, Z., Sun, Y., Seif El-Nasr M., Nguyen, T. D. Player Skill Decomposition in Multiplayer Online Battle Arenas. In *Meaningful Play*, 2016.

Chen, Z., Seif El-Nasr, M., Canossa, A., Badler, J., Tignor, S., and Colvin, R. Modeling Individual Differences through Frequent Pattern Mining on Role-Playing Game Actions. *In Artificial Intelligence and Interactive Digital Entertainment (AIIDE)*, 2015.

Melcer, E., Nguyen, T. D., **Chen, Z.,** Canossa, A., Seif El-Nasr, M., and Isbister, K. Games Research Today: Analyzing the Academic Landscape 2000-2014. *In Foundation of Digital Games (FDG)*, 2015. **Best Paper**.

Nguyen, T. D., **Chen, Z.,** and Seif El-Nasr, M. Analytics-based AI Techniques for Better Gaming Experience. In Game AI Pro 2, 2015. (Book Chapter)