

# ZHONGXIU “AURORA” LIU

**Specialization:** Educational Data Mining, Data Analysis, Educational Game, Educational Technology, User-centered Design and Research

**Skills:** R, Java, JavaScript, C/C++, SQL, Python, Ruby on Rails, HTML/XML/CSS; Unity, Angular JS, Matlab, SAS, Weka, Android Studio, Machine Learning Models, Agile Development, Chinese, Spanish, **Presenting, Writing.**

## EDUCATION

**Ph.D. Computer Science, Aug 2014 – Present**

North Carolina State University (NCSU), Advisor: Dr. Tiffany Barnes

**M.S. Computer Science, Aug 2014 – May 2016**

North Carolina State University (NCSU), GPA 3.83/4.0

**B.Sc. Computer Science, *Minor in Mathematics, Statistics*, May 2014**

Worcester Polytechnic Institute (WPI), GPA 3.8/4.0, Graduated with High Distinction

## RESEARCH EXPERIENCE

**NCSU Game2Learn Lab**, Dr. Tiffany Barnes, *Oct 2014 – present:*

- Analyzing data of student play, user-generated contents, and e-learning behaviors in educational games, MOOC, and intelligent tutoring system.
- Evaluating data-driven methods and pedagogical decisions in intelligent tutor under real classroom settings.
- Implemented a gamified feature, designed study and collected data for teaching debugging in an educational game.
- Authored multiple papers for the above projects, accepted for publication at peer-reviewed conferences.

**WPI Artificial Intelligence Lab**, Dr. Neil Heffernan, *2012- 2014:*

- ASSISTments is an intelligent tutor used by tens of thousands of users worldwide.
- Implemented a feature that enables teachers to specify conditions (affective state detected by sensor-free detectors, correctness in a row) that trigger intervention messages, and design the message content.
- General programming, trouble-shooting, user interface design and assistance in classroom experiments.

**MTA-Sztaki (Hungarian Academy of Science)**, Dr. Gabor Sarkozy, Dr. Andras Kornai, *March- May 2013:*

- Created a method for automatically build a sentence-level parallel corpus and a dictionary between Chinese, a high-density character-based language, and Hungarian, a medium-density word-based language.

## PUBLICATIONS

### Peer-reviewed Publications in Conference Proceedings

Liu, Z., Brown, R., Lynch, C., Barnes, T. Baker, R.S.J.d., Bergner, Y., Mcnamara, D. **Difference in MOOC Learning by Geographical Location.** *International Conference on Educational Data Mining.* Raleigh, USA. 2016 (forthcoming)

Hicks, A., Liu, Z., Barnes, T. **Measuring Gameplay Affordances of User-Generated Content in and Educational Game.** *International Conference on Educational Data Mining.* Raleigh, USA. 2016 (forthcoming)

Liu, Z., Mostafavi, B., Barnes, T. **Combining Worked Examples and Problem Solving in a Data-driven Logic Tutor.** *International Conference on Intelligent Tutoring Systems.* Zagreb, Croatia. 2016

Mostafavi, B., **Liu, Z.**, Barnes, T. **Data-driven Proficiency Profiling.** *International Conference on Educational Data Mining.* Madrid, Spain, 2015

**Liu, Z.**, Pataranutaporn, V., Ocumpaugh, J., Baker, R.S.J.d. **Sequences of Frustration and Confusion, and Learning.** *The 6th International Conference on Educational Data Mining.* Memphis, USA, 2013

### **Technical Report**

**Liu, Z.**, Zhang, Y., Kornai, A., Sárközy, G. **Automated Building of Sentence-Level Parallel Corpus and Chinese-Hungarian Dictionary.** *Technical Report MQP-CDR-GXS1301.* Worcester Polytechnic Institute, 2013

### **Extended Abstract and Posters**

**Liu, Z.**, Barnes, T. **Data-driven Hint Generation from Peer Debugging Solutions.** *International Conference on Educational Data Mining.* Madrid, Spain, 2015. (Doctorial Consortium)

## **INDUSTRY EXPERIENCE**

### **IBM Watson, Cognitive Software Engineer, May-Aug 2015**

- Watson for Oncology is a healthcare solution that analyzes patients' medical record against millions of medical literature sources to provide evidence-based treatment options.
- In a team of 5, designed and developed a personalized treatment comparison tool which compares treatments' side effects. The product follows cognitive computing principles, adaptable to patients' personal preferences, and pluggable to other Watson products.
- Actively involved designers and stakeholders in the design and agile development processes.
- Led one initial visualization design, UI layout design, patent writing and user study.

### **NCSU, Teaching Assistant, Aug 2014 – Present**

Work as head TA to assist instructors in organizing grading, office hours, review sessions, and other work in a timely manner.

### **Dell Inc., Embedded Systems Engineering Intern, Apr - Aug 2013**

Automated the procedure to evaluate disk drive performance for Dell's award winning solution – Equallogic. The procedure evaluates various disk controller and models and generates statistical report to help the team make informed decision on storage disk.

## **SERVICE & INVOLVEMENT**

**Reviewer:** International Conference on Educational Data-Mining (EDM), Learning@Scale (L@S), Intelligent Tutoring Systems (ITS)

**Volunteer:** International Conference on Educational Data-Mining (EDM), Artificial Intelligence on Education (AIED)

Program Lead, STARS - MSEN Middle School Computer Science Outreach Aug 2014 – present

Member, Women in Computer Science (WICS) Aug 2014 – present

Member, Alpha Gamma Delta International Sorority (AGD) Dec 2010 – present

## **HONORS**

Grace Hopper Scholar 2015

AIED, Prof. Ram Kumar Memorial Foundation Fellowship 2015

UPE International Honor Society for the Computing and Information Disciplines 2013-present

Charles O.Thompson Scholar for Outstanding First Year Performance, WPI 2010

Presidential Scholarship and International Scholarship, WPI (\$98,000) 2010-2014