

ZHONGXIU “AURORA” LIU

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

Programming - R, Java, JavaScript, C/C++, SQL, Python, Ruby on Rails, HTML/XML/CSS, Angular JS, Object-oriented Design, Agile Development | **Development Tools** - Unity, Eclipse, R Studio, Android Studio, Visual Studio | **Data Analysis** - R, Matlab, SPSS, Weka, Statistical Analysis, Data Collection, Machine Learning Models | **User Research** - Research/Experiment Design, A/B Testing, Quantitative Methods, IRB Protocol | **Others** - Chinese, Spanish, Presenting, Writing.

EDUCATION

Ph.D. Computer Science, Aug 2014 – Present

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

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

North Carolina State University (NCU), 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

NCU 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 the head TA to assist in organizing grading, review sessions, and others 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