Jin Guo

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Education

2016.7 - Present **University of Notre Dame**, Notre Dame, United States
Ph.D. Student in Computer Engineering
Advisor: Dr. Jane Cleland-Huang

2013.1 – 2016.6 **DePaul University**, Chicago, United States
Ph.D. Student in Computer and Information Science
Coursework includes: Artificial Intelligence, Intelligent Information Retrieval, Software Architecture, Software Testing and Quality Assurance.

2006.9 - 2009.6 **Xi'an Jiaotong University**, Xi'an, China
Master of Science in Information and Communication Engineering
Coursework includes: Digital Image Processing, Digital Signal Processing, Mathematical Statistics, Stochastic Process, Pattern Recognition, Computational Method.

2002.9 - 2006.7 **Xi'an Jiaotong University**, Xi'an, China
Bachelor of Science in Information Engineering
Coursework includes: Mathematical Analysis, Discrete Mathematics, Signals and Systems, Data Mining and Knowledge Discovery, Information Theory, Operating System.

Research and Work Experience

2016.7 - Present **Research Assistant,** University of Notre Dame, Notre Dame, United States

- Designed and implemented accurate trace link generation system that utilizes Recurrent Neural Network (RNN) to extract semantic information from software artifact.
- Evaluated and compared the performance of different RNN variations (i.e. LSTM, Bi-LSTM, GRU and Bi-GRU) with different configurations for the purpose of software traceability.

2013.1 - 2016.6 **Research Assistant,** DePaul University, Chicago, United States

- Designed and implemented platform utilizing Natural Language Processing (NLP) and data mining techniques including Syntax Analysis, Association Rule Mining, Topic Modeling, etc. to extract domain knowledge supervised by software traceability data.
- Designed and implemented method that analyzes software artifact syntax and extracts semantic information representing the key functions of software system.
- Designed knowledge base containing domain specific concepts and relations. Implemented algorithm that queries knowledge base for supporting inference during traceability activities.
- Designed and implemented intelligent domain specific traceability system that could establish accurate trace links between software artifacts and generate the underlying rationales explaining those links.

2009.6 - 2011.7 **Researcher,** Communication Technology Lab, Fuji Xerox Co., Ltd., Japan

- Designed and implemented image processing algorithm to extract and correct the business card and whiteboard regions from images with complex background.
- Designed and implemented the fuzzy image comparing algorithm. Developed the corresponding application for Windows, Linux, and OS X.
- Implemented new image processing modules and modified existing modules to improve performances for the image processing platform which is used throughout Fuji Xerox.

2007.10 - 2008.8 **Visiting Research Fellow**, Communication Technology Lab, Fuji Xerox Co., Ltd., Japan

- Participated in designing and implementing the "Sensing UI" platform (a novel human-computer interface based on 3D tracking technologies) and took in charge of the image processing module.
- Proposed an improved object model for the current "Sensing UI" prototype and developed its feature extraction algorithm.

Publications & Patents

Guo, J., Cheng, J., Cleland-Huang, J. (2016). Semantically Enhanced Software Traceability Using Deep Learning Techniques. Submitted to the *39th International Conference on Software Engineering - ICSE'17.* IEEE.

Guo, J., Gibiec M., Cleland-Huang, J. (2016). Tackling the Term-Mismatch Problem in Automated Trace Retrieval. Accepted subject to minor revisions for *EMSE Special Issue on "Software and Systems Traceability".* Springer.

Cheng, J., Putnam, C., Guo, J. (2016). "Always a Tall Order": Values and Practices of Professional Game Designers of Serious Games for Health. Accepted to appear in Proceedings of *the 3rd ACM SIGCHI annual symposium on Computer-human interaction in play*.

Guo, J. (2016). Ontology Learning and its Application in Software-Intensive Projects. In Proceedings of the *38th International Conference on Software Engineering – ICSE'16 Companion* (pp. 843-846). ACM

Guo, J., Rahimi, M., Cleland-Huang, J., Rasin, A., Hayes J.H., and Vierhauser, M. (2016). Cold-Start Software Analytics. In Proceedings of the *13th International Conference on Mining Software Repositories – MSR'16* (pp. 142-153). ACM.

Guo, J., Monaikul, N., and Cleland-Huang, J. (2015). Trace Links Explained: An Automated Approach for Generating Rationales. In Proceedings of the *23st IEEE International Requirements Engineering Conference – RE'15* (pp. 202–207). IEEE.

Guo, J., Monaikul, N., Plepel, C., and Cleland-Huang, J. (2014). Towards an intelligent domain-specific traceability solution. In Proceedings of the *29th ACM/IEEE international conference on Automated software engineering - ASE '14* (pp. 755–766). ACM.

Cleland-Huang, J., Guo, J. (2014). Towards more intelligent trace retrieval algorithms. In Proceedings of the *3rd International Workshop on Realizing Artificial Intelligence Synergies in Software Engineering – RAISE'14* (pp. 1–6). ACM.

Guo, J., Cleland-Huang, J., and Berenbach, B. (2013). Foundations for an expert system in domain-specific traceability. In the *21st IEEE International Requirements Engineering Conference – RE'13* (pp. 42–51). IEEE.

Guo, J., Onishi, T. (2014). Subject region detecting apparatus. U.S. Patent 8,805,077, filed November 8, 2011 and issued August 12, 2014.

Guo, J., Onishi, T. (2014). Image processing apparatus, image processing method, and computer readable medium. U.S. Patent 8,923,610, filed October 31, 2011 and issued December 30, 2014.

Teaching Experience

Design Patterns, Guest Lecturer in SE350: Object-Oriented Software Development, DePaul University, February 2016

Ontology Learning for Software-Intensive Projects, Guest Lecturer in CSC 480: Artificial Intelligence, DePaul University, February 2016

Research Community Activities

2014-2016	**Organizing Committee Member**, 1st, 2nd, and 3rd International Workshop on AIRE
2016	**Program Committee Member**, 5th International Workshop on RAISE, Austin, United States
2015	**Program Committee Member**, 8th International Symposium on SST, Florence, Italy
2015	**Student Volunteer,** 23rd IEEE International RE Conference, Ottawa, Canada
2013	**Student Volunteer**, 19th ACM SIGKDD Conference, Chicago, United States
2012	**Student Volunteer,** 20th IEEE International RE Conference, Chicago, United States

Skills

Computer:
- Programming languages: C/C++, C#, and Java
- Development environments: Visual Studio and Eclipse IDE
- Operating systems: Windows, Linux, and Mac OS X
- Other libraries and tools: Protégé, Octave, OpenCV, GATE, and Qt

Language:
- Proficient in **English** (TOFEL iBT 115/120)
- Intermediate in **Japanese** (three years of working experience in Japan)
- Native **Chinese**