X I N Z H A O

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# EDUCATION

**The University of Alabama** Tuscaloosa, AL

*Ph.D. Candidate in Computer Science (2015-Present)*

Current research interests: model evolution in systems modeling, software product lines Advisor: Dr. Jeff Gray

**Wuhan University, School of Computer Science** Wuhan, China *Graduate Student, 2014 - 2015*

Focus on computer vision at National Engineering Research Center for Multimedia Software Advisor: Dr. Ruimin Hu

**Hebei Normal University, School of Computer Science** Shijiazhuang, China Bachelor in Science (B.S.), 2009 - 2013

# EXPERIENCE

**Doctoral Research** Tuscaloosa, AL

University of Alabama, 2015 - Present

Empirical studies on systems models, systems models code smells, refactoring, and metrics analyses; feature models complexity analyses.

**Research Assistant** Tuscaloosa, AL

[Department of Education – EIR](https://oese.ed.gov/offices/office-of-discretionary-grants-support-services/innovation-early-learning/education-innovation-and-research-eir/awards/), University of Alabama, 07/2020 – Present

Assist in summer “CS Professional Development” week of experiences offered to teachers who receive instruction from three different evidence-based curricula that form a CS course pathway.

NSF STEM+C ([#1639971](https://www.nsf.gov/awardsearch/showAward?AWD_ID=1639971)), University of Alabama, 01/2020 – 06/2020

Design lesson plans of Edison programmable robots for high school in the Alabama Black Belt region.

**Teaching Assistant** Tuscaloosa, AL

University of Alabama, 2015 - 2019

Courses: CS 104 – Computer Science Principles, CS 201 – Data Structure and Algorithm CS 300 – Operating Systems, CS 495 Capstone Computing

**Developer** Tuscaloosa, AL

Gorgas Library at University of Alabama, 06/2018 – 08/2018

Apply JavaScript to manage data in databases of the University of Alabama; Develop and integrate FOLIO (a platform for library management system) to the University of Alabama library.

**Support Staff** Tuscaloosa, AL

2016 CS Principles for High School Teachers Training at University of Alabama, 06/2016

Designed website to promote and provide information about the workshop

Provided assistance to workshop participants

**Graduate Student Researcher** Wuhan, China

National Engineering Research Center for Multimedia Software at Wuhan University, 2014 – 2015 Develop and optimize Surveillance Video Detection System

**Co-Founder and Manager** Shijiazhuang, China

Hebei Normal University, 2011 – 2012

Co-Created official Bulletin Board System for School of Software,

Hebei University and maintained the BBS for one year.

**Undergraduate Student Researcher** Shijiazhuang, China Key Laboratory of Internet of Things of Hebei Province, 2012

Designed and developed Tanlers Energy Management System

# Publications

**Journals**

Xin Zhao and Jeff Gray. Towards A Metrics Suite for the Complexity Analysis of LabVIEW Systems Models. *Software Quality Journal*, under review.

Xin Zhao, Saheed Popoola, Ziliang Zhang, Zhe Jiang, and Jeff Gray. Past Questions, Future Needs: Mining User Forum Posts to Understand Modeling Challenges in Systems Engineering. Science of Computer Programming, under review.

Saheed Popoola, Xin Zhao, and Jeff Gray, Evolution of Bad Smells in LabVIEW Graphical Models. *Journal of Object Technology*, under review.

**Book Chapter**

Xin Zhao, Jiang Zhe, and Jeff Gray, Text Classification and Topic Modeling for Online Discussion Forums

- An Empirical Study from the Systems Modeling Community. In *Trends and Applications of Text Summarization Techniques.* IGI Global, pp 151 – 186.

# Conference Proceedings

# Xin Zhao and Jeff Gray, “A Survey-Based Empirical Evaluation of Bad Smells in LabVIEW Systems Models,” under review.

# Saheed Popoola, Xin Zhao, Antonio Garcia-Dominguez and Jeff Gray, “Recovering Tacit Design Decisions in Simulink Models by Mining Open Source Repositories,” under review.

Xin Zhao and Jeff Gray, “BESMER: An Approach for Bad Smells Summarization in Systems Models.” *Models and Evolution* at *ACM/IEEE 22th International Conference on Model Driven Engineering Languages and Systems* (**ME@MODELS’19**), Munich, Germany. pp. 304-313.

Xin Zhao and Jeff Gray, “Feature Model Design Guidelines: Exploring the Relationship between Feature Model Structure and Structural Complexity,” *7th International Conference on Model-Driven Engineering and Software Development,* (**MODELSWARD’ 19**), Prague, Czech Republic. pp. 323 – 331.

Xin Zhao, Austin Payne, and Travis Atkison “TTExTS: A Dynamic Framework to Reverse UML Sequence Diagrams from Execution Traces,” *16th International Conference on Software Engineering Research and Practice*, **(SERP’18)**, Las Vegas, Nevada, USA. pp. 82 – 88.

Xin Zhao, “Feature-oriented Modeling for Collaborative Virtual Environment Construction,” *Doctoral Symposium at ACM/IEEE 20th International Conference on Model Driven Engineering Languages and Systems* (**MODELS’17**), Austin, TX, USA. pp. 494 – 499.

# Invited Talks

# Xin Zhao and Jeff Gray, “How Complicated is Complicated Models? – A Complexity Analysis for LabVIEW Systems Models,” ACM Mid-Southeast Conference (online conference), November 14, 2020.

# AWARDS AND HONORS

Awards:

* 2015 International Mathematical Contest in Modeling (MCM)/ Interdisciplinary Contest in Modeling (ICM), runner-up, Sponsored by the Mathematical Association of America.

Academic Scholarship:

* Wuhan University Fellowship, 2014 – 2015
* Academic Excellence Scholarship, Hebei Normal University, 2012
* Excellent Student Award, Hebei Normal University, 2011
* National Encouragement Scholarship, 2010

# K-12 OUTREACH

* Exploring Computer Science Online Summer Professional Development, July 2020, participant.
* UTeach AP Computer Science Principles Online Professional Development, July 2020, participant.
* Annual Alabama Robotics Contest, April 2019, Administrator and Head Judge.
* CS4HS Summer Camp, June 2019, June 2018, Assistant.
* Annual Alabama Robotics Contest, April 2018, April 2017, Lead Scorekeeper.
* Google CS4HS Course, July 2016, Assistant.
* Annual Alabama Robotics Contest, April 2016, Assistant Scorekeeper.

# ACADEMIC SERVICE

**Journal Review**

* Journal of Software and Systems Modeling (Springer)

**Conference Review**

* ACM\IEEE 23th International Conference on Model Driven Engineering Languages and Systems (**MODELS’ 20**)
* 16th European Conference on Modelling Foundations and Applications (**ECMFA'20**)
* 15th European Conference on Modelling Foundations and Applications (**ECMFA'19**)
* 10th International Conference on Model Transformation (**ICMT'17**)
* 22nd Conference of Evaluation and Modelling Methods for Systems Analysis and Development (**EMMSAD'17**)

**Student Volunteer**

* ACM/IEEE 22th International Conference on Model Driven Engineering Languages and Systems (**MODELS’19)**
* ACM\IEEE 20th International Conference on Model Driven Engineering Languages and Systems (**MODELS’ 17**)