

Ke Wang

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Research Interests

My research interests span Artificial Intelligence, Deep Learning and Programming Language. My goal is to create methodologies, techniques and tools for improving the learning efficiency of students and increasing the programming productivity of developers.

Education

- 2012–Present **Ph.D., Computer Science**, *University of California, Davis, US.*
2008–2009 **MSc, Computer Science**, *Imperial College London, UK.*
2005–2007 **BEng, Electronic Engineering**, *Birmingham City University, UK.*
2003–2005 **Certificate of Completion**, *Nanjing University of Science and Technology, China.*

Employment

- 08/2017– **Product Manager**, MICROSOFT, Redmond, WA, US.
Present
 - Leading two teams to productionalize the research on automated feedback generation for introductory programming exercises.
- 06/2017– **Research Intern**, MICROSOFT RESEARCH, Redmond, WA, US.
09/2017
 - Developed deep learning architectures for learning semantic program embedding.
- 02/2017– **Research Consultant**, MICROSOFT RESEARCH, Redmond, WA, US.
06/2017
 - Developed novel similarity detection and program repair techniques for improving the initial research prototype.
- 09/2016– **Software Engineering Intern**, FACEBOOK, Menlo Park, CA, US.
12/2016
 - Created a multi-label topic recommendation model.
- 7/2016– **Research Consultant**, MICROSOFT RESEARCH, Redmond, WA, US.
9/2016
 - Aided application deployment and future research.
- 03/2016– **Research Intern**, MICROSOFT RESEARCH, Redmond, WA, US.
07/2016
 - Developed a data-driven program feedback generator that can automatically fix the student coding submissions
 - Preliminary evaluation shows our approach fixes almost 90% of student submission in less than a couple of seconds
- 09/2010– **Software Engineer**, SIEMENS CORPORATE TECHNOLOGY, Nanjing, China.
07/2012
 - Led the project of developing the official talent recruitment system for HR division.
 - Participated on the project of developing a web portal for China Mobile Design Institute.
- 01/2010– **Research Intern**, SIEMENS CORPORATE RESEARCH, Princeton, US.
06/2010
 - Participated in the project of automatically segmenting the mitral valve from 4D volumetric data. In particular, we applied various machine learning techniques to aid valve detection and modeling.

Publications (All First and Only Student Author)

- PLDI 2018 **Ke Wang**, Rishabh Singh and Zhendong Su. **Search, Align, and Repair: Data-Driven Feedback Generation for Introductory Programming Exercises.** *ACM SIGPLAN Conference on Programming Language Design and Implementation*, Philadelphia, June 2018.
- ICLR 2018 **Ke Wang**, Rishabh Singh and Zhendong Su. **Dynamic Neural Program Embedding for Program Repair.** *International Conference on Learning Representations*, Vancouver, April 2018.
- L@S 2017 **Ke Wang**, Benjamin Lin, Bjorn Rettig, Paul Pardi and Rishabh Singh. **Data-Driven Feedback Generator for Online Programming Courses .** *ACM Conference on Learning @ Scale*, Cambridge, April 2017.
- IJCAI 2016 **Ke Wang** and Zhendong Su. **Dimensionally Guided Synthesis of Mathematical Word Problems.** *International Joint Conference on Artificial Intelligence*, New York City, July 2016.
- IJCAI 2015 **Ke Wang** and Zhendong Su. **Automated Geometry Theorem Proving for Human-Readable Proofs.** *International Joint Conference on Artificial Intelligence*, Buenos Aires, July 2015.
- IJCAI 2015 **Ke Wang** and Zhendong Su. **Automatic Generation of Raven's Progressive Matrices.** *International Joint Conference on Artificial Intelligence*, Buenos Aires, July 2015.

Patents

- Ke Wang, Benjamin Lin, Bjorn Rettig, Paul Pardi and Rishabh Singh. **Data-Driven Feedback Generator For Programming Assignments.** 401696-US-NP
- Ke Wang, Benjamin Lin, Bjorn Rettig, Paul Pardi, Zhendong Su and Rishabh Singh. **Search, Align, and Repair: Data-Driven Feedback Generation for Introductory Programming Exercises.** Under Application
- Ke Wang, Benjamin Lin, Bjorn Rettig, Paul Pardi, and Rishabh Singh. **Innovative User Interface on Feedback Presentation for Programming Exercises.** Under Application
- Ke Wang and Zhendong Su. **Automated Geometry Theorem Proving for Human-Readable Proofs.** File Number: SU15-1001PSP
- Ke Wang and Zhendong Su. **Automatic Generation of Raven's Progressive Matrices.** SU15-1001PSP

Teaching

- Winter 2015 Teaching Assistant, Semantics of Programming Languages (Graduate Level)
- Winter 2014 Teaching Assistant, Introduction to Software Development and OO Programming (Undergraduate Level)
- Winter 2013 Teaching Assistant, Introduction to Software Development and OO Programming (Undergraduate Level)

Awards

- IJCAI-AIJ PhD Travel Grants Award**, IJCAI 2015
- Honorable Mention for Best Graduate Student Researcher Award**, UC Davis Computer Science Department, 2015

Best Academic Performance Award, Birmingham City University Electronic Engineering Department, 2006 and 2007

Birmingham City Mayor's guest at Celebration of Chinese New Year 2006

Best Academic Performance Award, Nanjing University of Science and Technology International Education School, 2004 and 2005

Selected Press

Cortana Intelligence, Machine Learning AI for Education: Individualized Code Feedback for Thousands of Students
<https://blogs.technet.microsoft.com/machinelearning/2017/10/25/ai-for-education-individualized-code-feedback-for-thousands-of-students>

References

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