

# BIHUAN CHEN

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## EDUCATION

- 2009 – 2014 **Fudan University, Shanghai, China**  
Ph.D. in Computer Science  
Thesis: Requirements- and Architecture-Based Self-Adaptation of Software Systems  
Supervisor: Prof. Weyun Zhao and Prof. Xin Peng
- 2013 – 2014 **Nanyang Technological University, Singapore**  
Visiting Student in School of Computer Engineering  
Topic: Architecture-Based Behavioral Adaptation via Runtime Quantitative Verification  
Supervisor: Prof. Yang Liu
- 2005 – 2009 **Fudan University, Shanghai, China**  
B.Sc. in Computer Science  
Thesis: Self-Optimization of Software Quality Based on Feedback Control Theory  
Supervisor: Prof. Wenyun Zhao and Prof. Xin Peng

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## EXPERIENCE

- 2014 – NOW **Nanyang Technological University, Singapore**  
Postdoctoral Research Fellow in School of Computer Science and Engineering

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## RESEARCH INTERESTS

Software Engineering, Program Analysis, Software Testing, Software Security, and Self-Adaptive Systems.

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## PUBLICATIONS

- JOURNAL   J5   **Bihuan Chen**, Xin Peng, Yang Liu, Songzheng Song, Jiahuan Zheng, and Wenyun Zhao. Architecture-based behavioral adaptation with generated alternatives and relaxed constraints. *IEEE Transactions on Services Computing*, 2016, accepted. [Impact factor: 2.365]
- J4   Wenyi Qian, Xin Peng, **Bihuan Chen**, John Mylopoulos, Huanhuan Wang, and Wenyun Zhao. Rationalism with a dose of empiricism: Combining goal reasoning and case-based reasoning for self-adaptive software systems. *Requirements Engineering*, 20(3): 233–252, 2015. [An invited extended version of the RE2014 paper; Impact factor: 0.882]
- J3   **Bihuan Chen**, Xin Peng, Yijun Yu, and Wenyun Zhao. Requirements-driven self-optimization of composite services using feedback control. *IEEE Transactions on Services Computing*, 8(1): 107–120, 2015. [Impact factor: 3.049]
- J2   **Bihuan Chen**, Xin Peng, Yijun Yu, and Wenyun Zhao. Uncertainty handling in goal-driven self-optimization – Limiting the negative effect on adaptation. *Journal of Systems and Software*, 90: 114–127, 2014. [Impact factor: 1.352]
- J1   Xin Peng, **Bihuan Chen**, Yijun Yu, and Wenyun Zhao. Self-tuning of software systems through dynamic quality tradeoff and value-based feedback control loop. *Journal of Systems and Software*, 85(12): 2707–2719, 2012. [An extended version of the RE2010 short paper; Impact factor: 1.135]
- CONFERENCE   C7   Xiaofei Xie, **Bihuan Chen**, Yang Liu, Wei Le, and Xiaohong Li. Proteus: Computing disjunctive loop summary via path dependency analysis. In *Proceedings of the 24th ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE)*, Seattle, WA, USA, pages 61–72, 2016. [ACM SIGSOFT Distinguished Paper Award; Acceptance rate: 74/273 = 27.1%]

- C6 **Bihuan Chen**, Yang Liu, and Wei Le. Generating Performance Distributions via Probabilistic Symbolic Execution. In *Proceedings of the 38th International Conference on Software Engineering (ICSE)*, Austin, TX, USA, pages 49-60, 2016. [Acceptance rate:  $101/530 = 19.1\%$ ]
- C5 Wenyi Qian, Xin Peng, **Bihuan Chen**, John Mylopoulos, Huanhuan Wang, and Wenyun Zhao. Rationalism with a dose of empiricism: Case-based reasoning for requirements-driven self-adaptation. In *Proceedings of the 22th IEEE International Requirements Engineering Conference (RE)*, Karlskrona, Sweden, pages 113-122, 2014. [Acceptance rate:  $31/115 = 27.0\%$ ]
- C4 **Bihuan Chen**, Xin Peng, Yijun Yu, Bashar Nuseibeh, and Wenyun Zhao. Self-adaptation through incremental generative model transformations at runtime. In *Proceedings of the 36th International Conference on Software Engineering (ICSE)*, Hyderabad, India, pages 676-687, 2014. [Acceptance rate:  $99/495 = 20.0\%$ ]
- C3 **Bihuan Chen**, Xin Peng, Yijun Yu, and Wenyun Zhao. Are your sites down? Requirements-driven self-tuning for the survivability of web systems. In *Proceedings of the 19th IEEE International Requirements Engineering Conference (RE)*, Trento, Italy, pages 219-228, 2011. [An extended version of the WWW2010 poster paper; Acceptance rate:  $23/138 = 16.7\%$ ]
- C2 Xin Peng, **Bihuan Chen**, Yijun Yu, and Wenyun Zhao. Self-tuning of software systems through goal-based feedback loop control. In *Proceedings of the 18th IEEE International Requirements Engineering Conference (RE)*, Sydney, Australia, pages 104-107, 2010. [Short paper; Acceptance rate:  $(24+3)/151 = 15.9\%$ ]
- C1 **Bihuan Chen**, Xin Peng, and Wenyun Zhao. Towards runtime optimization of software quality based on feedback control theory. In *Proceedings of the First Asia-Pacific Symposium on Internetware (Internetware)*, Beijing, China, pages 1-8, 2009. [Acceptance rate: NA]
- WORKSHOP W1 Richang Lin, **Bihuan Chen**, Yi Xie, Xin Peng, and Wenyun Zhao. Learning-based multi-controller coordination for self-optimization. In *Proceedings of the 36th Annual IEEE Computer Software and Applications Conference Workshops (COMPSACW)*, Izmir, Turkey, pages 164-169, 2012. [Acceptance rate: NA]
- POSTER P1 **Bihuan Chen**, Xin Peng, Yijun Yu, and Wenyun Zhao. Survivability-oriented self-tuning of web systems. In *Proceedings of the 20th International Conference on World Wide Web (WWW)*, Hyderabad, India, pages 23-24, 2011. [Acceptance rate:  $(82+29)/658 = 12.5\%$ ]

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## AWARDS

- 2016 **ACM SIGSOFT Distinguished Paper Award at FSE 2016**
- 2016 **Shanghai Outstanding Doctoral Thesis Award in 2015**
- 2013 **Short-Term Study Abroad Program for Doctoral Students**  
Sponsored by Fudan University
- 2007 – 2012 **Scholarships of Fudan University**  
2007 (3rd), 2008 (3rd), 2009 (2nd), 2010 (1st), 2011 (1st), and 2012 (2nd)

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## TALKS

- May. 2016 “Generating Performance Distributions via Probabilistic Symbolic Execution”  
The 38th International Conference on Software Engineering (ICSE), Austin, TX, May 18, 2016.
- Dec. 2015 “Generating Performance Distributions via Probabilistic Symbolic Execution”  
School of Computer Science and Software Engineering, East China Normal University, Shanghai, China, December 31, 2015.
- Dec. 2015 “Generating Performance Distributions via Probabilistic Symbolic Execution”  
School of Software, Fudan University, Shanghai, China, December 25, 2015.
- Sep. 2013 “Model-Based Self-Adaptation from Requirements to Architectures: A Decision-Making Process”  
NII Shonan Meeting on Engineering Adaptive Software Systems, organized by J. Mylopoulos, H. Müller, Y. Yu, and S. Honiden, Shonan Village Center, Tokyo, Japan, September 9-12, 2013.
- May 2013 “Model-Based Self-Adaptation from Requirements to Architectures: A Decision-Making Process”

Requirements Engineering Workshop, organized by Software Engineering Technical Committee of China Computer Federation, Shanghai, China, May 11, 2013.

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## RESEARCH GRANTS

- G1 “Gamifying and Socializing Teaching and Learning of Software Engineering” (NTU EdeX Grants)  
Role: Research Collaborator  
Duration: Jan. 2015 – Jun. 2016  
Amount: 31,000 SGD

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## PROFESSIONAL SERVICES

- Reviewer IEEE Access (2016)  
IEEE Access (2015)  
Journal of Computer Science (JCS2015)  
IEEE Access (2014)
- Co-Reviewer IEEE Transactions on Software Engineering (TSE2016)  
31st IEEE/ACM International Conference on Automated Software Engineering (ASE2016)  
IEEE Transactions on Reliability (TR2014)  
21st Asia-Pacific Software Engineering Conference (APSEC2014)  
19th International Conference on Engineering of Complex Computer Systems (ICECCS2014)

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## REFERENCES

### Bashar Nuseibeh

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Department of Computing and Communications  
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### Yang Liu

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