Wei Fu

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EDUCATION

PhD. CS North Carolina State University May, 2013 - May, 2018(expected)
GPA:4.0/4.0

MS. EE Beijing University of Posts and Telecommunications Sep, 2009 - Apr, 2012
Overall GPA: 83/100, Major GPA: 86/100.

BS. EE Nanjing University of Technology Sep, 2005 - Jun, 2009
Overall GPA: 88/100, Major GPA: 90/100, Ranking: 5%.

PUBLICATION

Submitted

[1] **Wei Fu**, Vivek Nair, and Tim Menzies. *Why is Differential Evolution Better than Grid Search for Tuning Defect Predictors?.* arXiv preprint arXiv:1609.02613 (2016).

[2] Amritanshu Agrawal,**Wei Fu**, and Tim Menzies. *What is Wrong with Topic Modeling?(and How to Fix it Using Search-based SE).* arXiv preprint arXiv:1608.08176 (2016).

Conference

[1] **Wei Fu** and Tim Menzies. *Easy over Hard: A Case Study on Deep Learning.* In Proceedings of 2017 11th Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering (**FSE'17**).

[2] **Wei Fu** and Tim Menzies. *Revisiting Unsupervised Learning for Defect Prediction.* In Proceedings of 2017 11th Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering (**FSE'17**).

[3] Rahul Krishna, Tim Menzies, and **Wei Fu**. *Too Much Automation? the Bellwether Effect and Its Implications for Transfer Learning.* In Proceedings of the 31st IEEE/ACM International Conference on Automated Software Engineering (**ASE'16**).

[4] **Wei Fu**, Ruochen Yao, Feifei Gao, James C.F. Li, and Ming Lei. *Robust Null-Space Based Interference Avoiding Scheme for D2D Communication Underlying Cellular Networks.* In Proceedings of 2013 IEEE Wireless Communications and Networking Conference (**WCNC'13**).

Journal

[1] Jaechang Nam, **Wei Fu**, Sunghun Kim, Tim Menzies, Lin Tan. *Heterogeneous Defect Prediction.* IEEE Transactions on Software Engineering (**TSE**), 2017 (accepted).

[2] **Wei Fu**, Tim Menzies, Xipeng Shen, *Tuning for Software Analytics: is it Really Necessary.* Information and Software Technology (**IST**), 76 (2016): 135-146.

PATENT

- F. Gao, W. Fu, J.C.F. Li, and M. Lei, *Null-space Based Robust Interference Mitigation Method for Multiple-antenna D2D Communication System*, 2012, Chinese Patent.

EXPERIENCE

ABB USCRC, Software Engineering Group May, 2016 - Aug, 2016
Research Intern, Raleigh, USA

- Cleaned and visualized historical software development data across all software development teams in ABB.
- Applied data mining techniques to build predictive models and improve the quality of software development in ABB.
- Explored software engineering research questions based on proprietary data.

China Unicom Design Institute co., LTD Mar, 2011 - Oct, 2011
Intern, Beijing, China

- 3GPP standards research on Relay technique in LTE-Advanced system.
- Conducted independent research into the relay technology of a network physical layer, mainly focusing on the performance analysis of the Relay network combined with the network coding technique.

PROJECTS

Search-based Software Engineering Research Funded by NSF Sep, 2014 - Present

Research Assistant Under Dr. Tim Menzies, North Carolina State University, USA

My research topics mainly focus on how to apply next generation of AI techniques to help improve software quality and aid software process. Techniques that I'm interested in (but not limited to) are transfer learning, deep learning and search-based optimization. My research question is always: can we do "it" better and faster? I've investigated the following topics:

- How parameter tuning affects software analytics?
- How evolutionary approaches outperform grid search on parameter tuning for software analytics?
- How to apply transfer learning techniques for cross-project defect prediction?
- How sampling technique affects transfer learning?
- How to build simple learners for effort-aware just-in-time defect prediction?
- How deep learning performs compared to simple techniques for software analytics tasks?

Build a Continuous Delivery Pipeline from Scratch Sep, 2016 - Nov, 2016

Course Project, North Carolina State University, USA

- **BUILD**: a component that automatically created a build server, which is capable of building a target project in response to commit events, and trigger a post-build task; track and display a history of past builds via http.
- **TEST**: a component that can generate test cases, run unit tests, fuzzing tests, advanced fuzzing tests with genetic algorithms.
- **ANALYSIS**: a component that run existing static analysis tools, like Jlint, to measure coverage and do code analysis.
- **DEPLOY**: a component that has the ability to configure production environment automatically, deploy the application, monitor the deployed application, auto-scale components of production, perform canary release.

SKILLS

- **Software Development**: Python, Java, ASP.NET, JavaScript, SQL
- **DevOps**: Ansible, Jenkins, Git, Docker, Vagrant, Redis
- **Data Science**: Scikit-Learn, PyTorch, Weka, Matlab, R

TEACHING

- ECE220 Foundations of Electrical & Computer Engineering (LAB).
- ECE212 Fundamentals of Logic Design (LAB).
- ECE109 Introduction to Computer Systems (LAB).
- CSC791 Automated Software Engineering, Guest Lectures.
- CSC591 Foundation of Software Science, Guest Lectures.

SERVICE

- **Program Committees**: FAISE'18
- **Conference Reviewer**: FAISE'18, ESEM'17(subreviewer), IEEE ICC'14, IEEE WCNC'13, IEEE ICC'13, WCSP'12.
- **Journal Reviewer**: IST
- **Member**: IEEE/ACM Student Member.