# Department of Computer Science

## Models for Efficient Crowdtesting

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Stevens

**Hosted by Ali Mili, Ph.D.**

**DATE:** Wednesday, September 30, 2020
**TIME**: 2:30 PM – 3:30 PM
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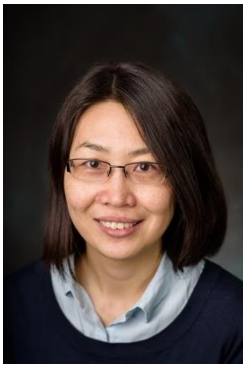
**Abstract:** Trade-offs such as "how much testing is enough" are critical yet challenging decisions in planning and managing software and systems testing. Insufficient testing can lead to unsatisfying product quality, while excessive testing can result in potential schedule delays and low cost-effectiveness. This is especially true for the development of large scale software-intensive systems, given their ever increasing system complexity, the lack of testing processes and resources, as well as the intense schedule pressure. In order to improve the testing efficiency and cost-effectiveness, there is a compelling need of time-sensitive, context-sensitive, and non-interruptive metrics and models with respect to testing manager's typical decision scenarios. In this talk, I will introduce a set of models to support efficient testing management, and particularly to support two primary types of testing decisions: matching distributed testing resources to tasks and predicting testing completion status. These consists of: 1) a testing measurement model and metrics for planning and measuring distributed testing processes; 2) a machine-learning based model for recommending optimal testing team formations; and 3) a machine-learning based model to dynamically monitor, aggregate, and predict testing progress towards completion. The resulting combination of better prediction models and better decision support systems would lead to better management of crowdsourcing software projects as well as better utilization of crowd workforce.



**Bio:** Professor Ye Yang's research lies in the area of empirical software engineering including software process technologies, software crowdsourcing, cost estimation, defect prediction, and technical debts. Her work has been centered around applying leading statistical, data mining, machine learning, natural language processing techniques to provide software improvement solutions addressing emergent software engineering challenges. Her recent focuses modeling, learning, and recommending best practices to reduce the cost and improve quality of software products around the crowdsourced software engineering paradigm. These include software crowdsourcing task price design, crowd worker performance measurement, task-worker matching, and automated crowdtesting management. She has served as PC Co-Chairs for the 2018 International Workshop on Crowdsourcing in Software Engineering (CSI-SE 2018), the 2018 International Workshop on Software Engineering Research and Industry Practice (SER&IP 2018), and PC member for top software engineering conferences including ICSE, ASE, and ESEM. She has published over 100 research papers, and won several Best Paper Awards, including the ACM Distinguished Paper Awards at ICSE 2019 and ICSE 2020.