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## WeFiLab: A Web-based WiFi Laboratory System for Wireless Networking Education

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### **Abstract:**

Remote access to physical laboratory infrastructure has received significant attention from researchers as it provides access at reduced cost in sharing manner. Many of them have successfully built a range of outstanding remote laboratories for science and engineering. Nevertheless, existing remote laboratories for the networking exclude the rapid growing wireless technologies from their lists, neglecting large demand from proliferated number of students enrolled in Mobile Computing courses. Moreover, their Web-based frameworks are not suitable for most mobile devices (e.g. Smartphones) due to their adoption of platform dependent and resource intensive plugins, preventing users from gaining access on the move. A practical online laboratory system for wireless networking education, Web-based WiFi Laboratory (WeFiLab) is thus proposed to overcome the shortcomings. The prototype of WeFiLab has been tested as a complement for an undergraduate course in the university. The results show that it can help students improve their confidence and knowledge in wireless networking, and also let instructors deliver their lectures efficiently.