TINGTING SUN
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Education

Rutgers University- New Brunswick, NJ: May 2013 (Expected)
Ph.D. in Electrical and Computer Engineering
GPA: 3.96/4.0
University of Science and Technology of China- Hefei, China: July 2005
B.E. in Computer Science
GPA: 3.56/4.0

Experience

Research Assistant, WINLAB, Rutgers University
Reinforcement Learning Based Adaptive Access Point Association Management   June '11– Present
- Created 3 bandwidth estimation schemes based on the 802.11 frame exchange sequence and used them to optimize an 802.11 association protocol in the Qualnet network simulator using C++, which increased the throughput by 38%, and reduced the end-to-end delay from 1.07sec to 0.044 sec.
- Created 2 stochastic policies to control mobile clients' re-association to the base station, and reduced the number of dropped packets by 90%.
- Designed and implemented reinforcement-learning-based strategies to adaptively schedule mobile client association with the base station, improving network throughput by 67%.

Student Intern, AT&T Labs   June '12 - August '12
- Implemented a full-duplex 802.11 MAC protocol in the NS3 network simulator using C++, which nearly doubled the throughput for multi-node, single-AP Wi-Fi networks.
- Created an infrastructure that provided backwards compatibility for the legacy half-duplex Wi-Fi in NS3.
- Built efficient test case generation and results processing tools using Perl to automatically configure and execute batch simulations of 100+ configurations, and extract and analyze the results from simulator output.

Research Assistant, WINLAB, Rutgers University
Tying Data to Geographic Locations in Mobile Networks   January '09–June '11
- Designed and implemented a location-based communication protocol using saved trajectory and locally cached data in NS2 using C++, which increased the data delivery rate by 70%.
- Created a road divergence detection algorithm, and using the parameters trained from 5444 GPS recordings obtained from a 2-hour drive, achieved a detection rate of 98.7%.
- Created the mathematical model for calculating the ideal multi-hop packet delivery rate in a Manhattan grid for the proposed protocol and the based-line protocol.
- Optimized the protocol further by applying reinforcement learning to adaptively adjust the packet handoff time according to network feedback, and achieved a 20% improvement in data delivery rate.

Adaptive Scheduling Framework for Wireless Sensor Networks   May '07– January '09
- Implemented an R-Sentry protocol to protect wireless sensor networks against random node failures in Nes-C.
- Built a prototype for the R-Sentry protocol on 15 MICA2 Motes, which provided continuous 95% coverage, and prolonged the lifetime of the sensor network by 30%.

Skills

- Programming Languages: C++, C, Perl, Nes-C, Java, JavaScript, SQL, HTML
- Simulation Tools: NS3,NS2, Qualnet, MATLAB
- Programming Tools: Eclipse, Visual Studio, KDevelop