

CS851 – Fall 2002

Mobile Computing and Wireless Networking

Instructors: Jörg Liebeherr and Chengzhi Li

Time: Tuesday & Thursday 4 – 5:15 pm

Place: Olsson Hall 228E

Web Page: <http://www.cs.virginia.edu/~cs851-2/course.html>

First meeting: August 29, 4pm, Olsson Hall 228E

Seminar Content: Recent advances in portable computing device and wireless communication technology make it possible to provide seamless and ubiquitous services for mobile users. Today, mobile computing is one of the most active fields in computer science. The shared access of wireless communication channels, the limited transmission range of portable devices, node mobility, and limited battery lifetime create a plethora of challenging research problems. This seminar will cover several topics related to these problems, including wireless medium access control protocols, routing protocols for mobile ad-hoc wireless networks, performance of transport protocols over wireless networks, impact of mobility on performance, quality-of-service issues, location management in mobile environments, energy efficient and power aware protocol designs. The topics are presented in terms of presentations by students.

Seminar Material: Selected papers from various journals and conferences will be used.

Prerequisites: Graduate standing, reasonable background in computer networks.

Enrollment: A maximum number of 20 students may enroll in this class due to space limitations. Enrollment is under the permissions of the instructors only.

Outline of Seminar

1. Vision and Challenges
2. Wireless Medium Access Control
3. IEEE 802.11
4. Mobile Ad-Hoc Routing
5. Mobile IP
6. TCP over Wireless Link
7. Energy Efficient and Power Aware Protocols
8. Capacity of Wireless Network
9. Data Dissemination
10. Address auto configuration
11. Location Tracking
12. Multicast in Mobile Ad Hoc Network (option)
13. Security (option)

Seminar Grading

1. Presentation: 40%
2. Project: 40%
3. Reading Summaries: 20%