

CpE / EE / SysEngg 5430

Wireless Networking

Maciej Zawodniok

Class Project Requirements

Summary

- Individual projects
 - Group collaboration with the instructor consent
- Types of projects:
 - Survey
 - Simulation of existing schemes/protocols
 - Development of a new scheme/protocol
 - Experimental study
 - Implementation of a scheme
- Topic selection – Sept 1st
- Mid-term report (literature survey) – Oct 6th
- Update presentation – Nov 10th

Project Report

- Report due on December 10th
- Project presentations
 - During the Dead and Finals week and if necessary a week earlier (depending on schedule)
- Project report
 - Length of ~4000 words including about 5-6 figures or tables – **excluding** appendix
 - Excessively long reports (e.g. 20 pages) will receive penalty (negative) points
 - Materials not directly included in the report should be added as appendix (e.g. code, additional results)
 - However, the report should be "independent" of the appendix (not depend on it!!)

Project Grading

- **Final Project Report (Maximum: 170 points)**
 - Introduction (10)
 - Background/Literature Review (20)
 - Methodology/Approach/Metrics (30)
 - Results (Comparison) and Discussion (40)
 - Conclusions (30)
 - References (20)
 - Appendices (if applicable) (10)
 - detailed description of code, test cases, extra simulation results, etc.
 - Technical English (10)
- **Final Presentations: (Maximum: 25 points)**
 - Introduction of project (5)
 - Approach and Results (15)
 - Timely presentation within 5 min. (5)
 - If a presentation/demonstration cannot be given during class presentation, please make an appointment with the instructor

Project Grading Criteria

- Literature review and references
 - References should include at least 20 professional publications (journals and conferences of IEEE, ACM, etc.)
 - **Minimum** 10 journal papers (journals, Transactions) and 5 other publications (magazines, conference proceedings) have to be referenced in the text (all projects)
 - IMPORTANT, a **SURVEY type project** has to refer at least 40 publications – including a minimum of 20 journal references (“transactions”, “journals”)
 - Internet and non-technical publications acceptable but no sufficient!

Summary

- Make sure there is one section for each of the graded content item (grading list)
 - If you have doubts about the items please contact the instructor
- Remember about references
 - Refer to the other papers in the text to back your claims
 - VERBATIM COPYING FROM OTHER PAPERS OR SOURCES IS PROHIBITED unless properly cited, e.g.
 - “The hardest thing in the world to understand is the income tax.” [1]
 - [1] A. Einstein

Example of Project Topics

- Identify open challenges in 5G nets
- Collect and visualize network performance
 - Routing data from 802.11s or BT devices)
- Implementation of mesh networking on STM32WB-based IoT devices
- GPU-based processing in software defined radio (SDR) – e.g. in GNU Radio
- Evaluate localization techniques and technologies (e.g. MDS in mesh networks)
- Evaluate radio hardware sharing techniques (1 SDR used by WiFi/BT/5G)