A2 Topic & Plan Presentation

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Weekly Plan

Study

Week 1 (March 25 - March 29):

- Read and thoroughly understand the research paper.
- Identify the problem statement, research objectives, and key concepts discussed in the paper.
- Study the analytical results and methodologies used in the paper.
- Set up the NS-3 simulator environment and familiarize myself with its features and functionalities.

Implementation

Week 2 (April 1 - April 5):

- Begin implementing the research paper's scenario in the NS-3 simulator.
- Verify the simulation setup by running simple test cases and comparing the results with the paper's analytical results.
- Identify any discrepancies or challenges in replicating the research paper's results.
- Consult additional resources or seek guidance from experts, if needed.

Validation

Week 3 (April 8 - April 9):

- Finalize the simulation setup and ensure it accurately replicates the research paper's scenario.
- Perform comprehensive simulations and collect relevant data/results.
- Compare the simulation results with the research paper's analytical results and verify their consistency.
- Document any deviations or enhancements observed during the simulation process.
- Prepare a report summarizing my findings and the process of verifying the research paper's concepts and results through simulation.

References Study

Reference	Key Points
NS-3 Events and Simulator	• Event-driven architecture • Event scheduling and processing • Simulation time management
NS-3 WiFi Models	• Physical layer models • MAC layer models (DCF, EDCA) • Rate control algorithms
Mac Layer Specific TXOP for EDCA in Ns-3 802.11e	• TXOP implementation for EDCA • QoS-aware WiFi networks • Accurate modeling of TXOP
IEEE-802.11ah-ns-3	• IEEE 802.11ah (Wi-Fi HaLow) • Low-power, long-range communication • IoT and M2M applications
Simulation using Nvidia Sionna	• Massive MIMO channel models • Signal processing algorithms • 5G and beyond wireless technologies

Pending Issues

- *Will be filled when implementation begin.*