The title of your project

Your name and project group

April 8, 2019

1 Introduction

Introduce your problem here. Key elements in this section are:

1. In this report, we focus on the problem of...
2. The importance and main contributions of this report.

2 Model and Problem Statement

You can either use mathematical formulas as follows

$$\max_{(P_{s,1},P_{s,2},P_r,\omega_r,\omega_t)} EE \quad s.t. \begin{cases} R_{\text{sum}} \geq R_{\min} \\ 1 \leq |\omega_r| = |\omega_t| \leq N_r \\ 0 < P_r \leq P_r^{\max}, 0 < P_{s,k} \leq P_s^{\max}, k \in \{1,2\}. \end{cases} \tag{1}$$

Or, you should have a clear description of your problem in details.
Then, you can end this section with the main challenges behind your problem.

3 Main Results

In this section, you should compared different possible solutions found in the literature [1] [2], and discuss their advantages or disadvantages in your scenarios. Then, you should try to choose one of them to go depth in the following. Or you can propose your own solution by combining previous ones or improve previous ones. If possible, you might try to prove something, and state it in a theorem or proposition as follows.

Theorem 1. *$\sqrt{2}$ is an irrational number.*

Proof. We will prove this by contradiction. □

Proposition 1. *Consider an M/M/1 system with arrival rate λ and service rate μ, the average response time is $\frac{1}{\mu-\lambda}$.*

4 Numerical Results

In this section, if possible (bonus points!), you can use simulations (for example, via Matlab, Python) to demonstrate the performance of your solution. Or, you should at least consider using the results in the papers you surveyed. Remember, you should not just copy them here. Rather, you should describe and explain the results.

5 Discussion

In this section, you might talk some generalizations or extensions of your solution.

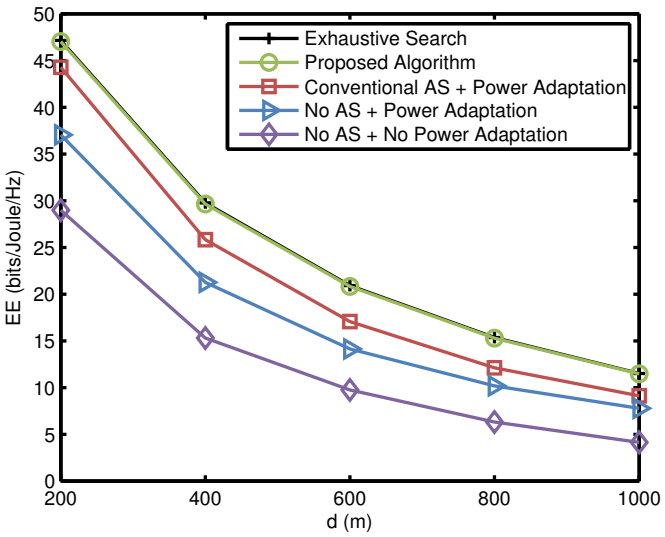

Figure 1: Energy efficiency VS. the distance d with $\varepsilon = 0.5$

6 Group Dynamics

Summarize the group work so far.

7 Conclusion

Conclude your problem in a short paragraph.

References

[1] Xingyu Zhou, Bo Bai, and Wei Chen. Energy efficient relay antenna selection for af mimo two-way relay channels. In *Communications (ICC), 2015 IEEE International Conference on*, pages 4686–4691. IEEE, 2015.

[2] Xingyu Zhou, Bo Bai, Wei Chen, and Yuxing Han. On energy efficiency maximization of af mimo relay systems with antenna selection. In *Signal and Information Processing (GlobalSIP), 2014 IEEE Global Conference on*, pages 88–92. IEEE, 2014.

A Code Appendix

In the appendix, you can provide further materials such as codes and additional simulation results.