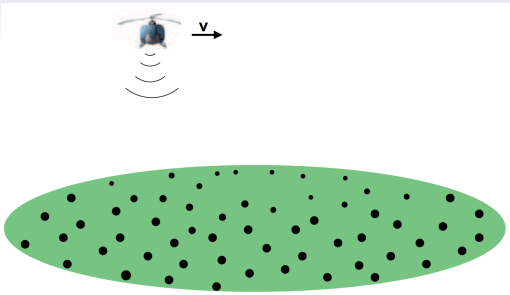
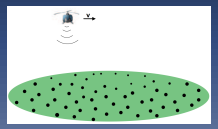


Trajectory Optimization for Completion Time Minimization in UAV-Enabled Multicasting

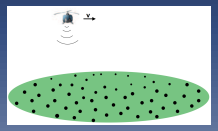
Riri Fifi Loulou

December 4, 2018

ENAC

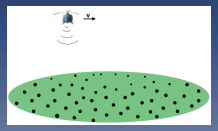


Plan



Introduction

The rest of this paper is organized as follows. Section II presents the system model and problem formulation. In Section III, the lower bound of the file recovery probability is derived, based on which the optimization problem is reformulated. In Section IV, the proposed UAV trajectory designs are presented. Section V provides the numerical results, and finally we conclude the paper in Section VI. Things in a Bulleted List



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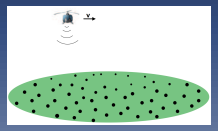
1. Bullets that
    1. one
    1. two



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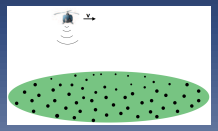
2. Come up
   2. one
   2. **two** and three



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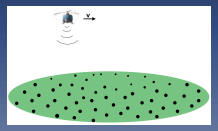
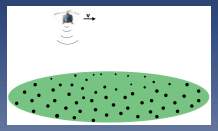
   2. one
   2. **two** and three
3. One by one
   3. one
   3. two



Equations

Equations are easy

- Just copy/paste equations



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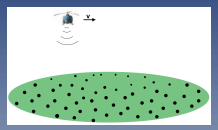
$$\mathbf{p}^* = \underset{\mathbf{p}}{\operatorname{argmin}} \sum_{\mathbf{x}} [I(\mathbf{W}(\mathbf{x};\mathbf{p})) - T(\mathbf{x})]^2$$



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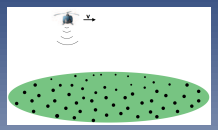

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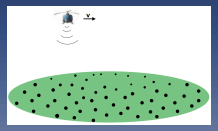
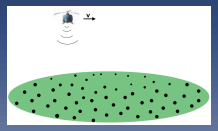


Pictures

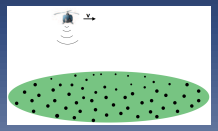
Figure – Kissing ducks



A Movie

Some block

- Movies only seem to work in Adobe Reader
- Movie file is not embedded, it must be on the computer



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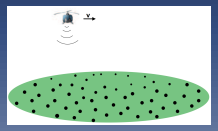

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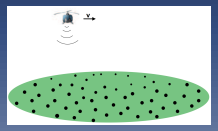

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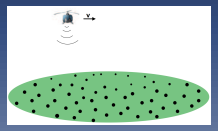
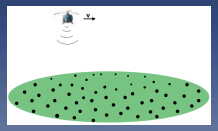


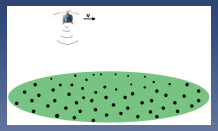
Credits

This paper studied the trajectory design problem for a UAV-enabled multicasting system to minimize the mission completion time, while ensuring that each GT is able to successfully recover the file with a high target probability. We first converted the formulated optimization problem into a more tractable form based on the derived analytical lower bound of the successful file recovery probability, so that its complicated constraint for each GT is simplified to one on its minimum connection time with the UAV. We showed that the optimal UAV trajectory only needs to constitute connected line segments, which can be determined by finding the optimal set of waypoints and then the optimal speed over time along the path connecting the waypoints. We proposed two practical waypoints design schemes and applied the LP to find the optimal traveling speed given waypoints

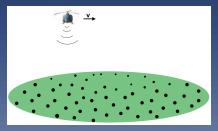


Questions

Appendices



First appendix



Second appendix