

Human foraging and search patterns a tablet game study

Introduction

A long standing hypothesis in animal behavior is that animals forage in a super diffusive pattern called a *Lévy flight*, and that this pattern optimize the efficiency of the foraging. The difficulties of tracking individual animals over long temporal and spatial scales, and the inherent lack of control in such experiments prevent progress in understanding such behavior.

It is also unclear whether such patterns are intrinsic to animal behavior or emerge as a result of environmental properties (e.g. patchy distribution of food sources or presence of other animals). Here we aim at creating a tablet based game environment, in which such questions can be addressed for the behavior of human players.

Project description

Implement a tablet based game where the foraging behavior of human players can be explored. The game should be implemented as an application available for large scale download. In the game, players will face a foraging like task in a given environment, and the trajectories and patterns they will produce will be available for analysis. The game should allow control of parameters relevant for the scientific questions in hand (properties of the environment, properties of the task), but should also be attractive enough to attract sufficient number of players. The exact definition of the game will be determined during the project together with the project supervisor.

The project is designed as a one semester project, with possibility of extending to a one year project.

Prerequisites

- Basic knowledge of stochastic processes (e.g Introduction to random processes)
- Basic programming knowledge, application programming is an advantage
- Motivation and desire for scientific exploration

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