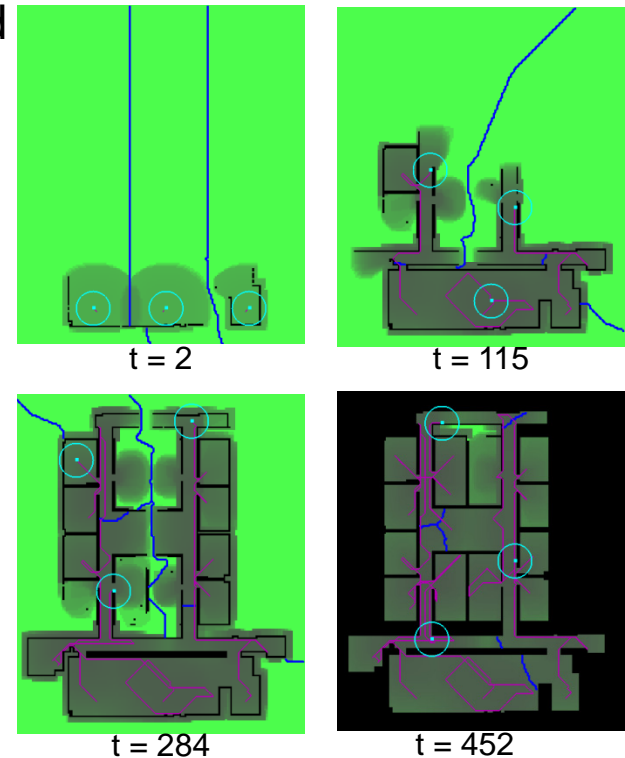


# Distributed Coverage and Exploration in Unknown Non-Convex Environments

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- **Problem Definition:**  $N$  agents exploring an unknown environment need to share exploration tasks fairly, and achieve good **coverage** during and at the end of exploration, in a distributed fashion.
- **Our approach:**
  - Develop an efficient way of computing **Voronoi tessellations** in non-convex environments using **search-based algorithm** for assignment of exploration and coverage tasks.
  - For the unknown environments used sensor models and sensor data fusion to maintain and update **entropy maps**.
  - Used Shannon entropy as a **metric in computing Voronoi tessellations**.
  - Identified Shannon entropy with the **density/weight function** of Lloyd's Algorithm.



3 robots exploring an unknown environment