



# A Projected Lloyd's Algorithm for Coverage Control Problems

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## About Me

- ▶ Yoav Palti, B.Sc in Aerospace Engineering, Technion, 2012
- ▶ Aeronautical algorithms engineer, IAF, since 2013
- ▶ M.Sc student since 2014



# Motivation

- ▶ Covering an area - (relatively) easy



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# Motivation

- ▶ Covering an area - (relatively) easy
- ▶ Covering an area with not sufficient amount of sensors - not so easy
  - ▶ *Requires better definition of behaviour*
- ▶ Maintain contact with home base (at least in steady state) - hard





# Problem Formulation



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# Lyapunov Stability



# Voronoi Partitioning



# Central Voronoi Tessellations



# Lloyd's Algorithm



# Formation Control





# Projection Operator



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# Lloyd's Algorithm and Formation Control



# Proof



# Projected Lloyd's Algorithm



# Proof



# Problem Solution Algorithm



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# Some Simulation

