

# FAB-MAP: Probabilistic Localization and Mapping in the Space of Appearance

M. Cummins and P. Newman (IJRR 2013)



- ▶ Probabilistic approach to recognize places based on their appearance (loop closure detection)
- ▶ Topological SLAM by learning a generative model of place appearances using bag-of-words
- ▶ Combination of appearance words occur because they are generated from common objects
- ▶ Approximation of a discrete distribution using Chow Liu algorithm
- ▶ Robust in visually repetitive environments
- ▶ Complexity linear in number of places and the algorithm is suitable for online loop closure detection in mobile robotics
- ▶ Demonstration by detecting loop closures over 2km path in an initially unknown outdoor environment