Detecting parametric objects in large scenes by Monte Carlo sampling

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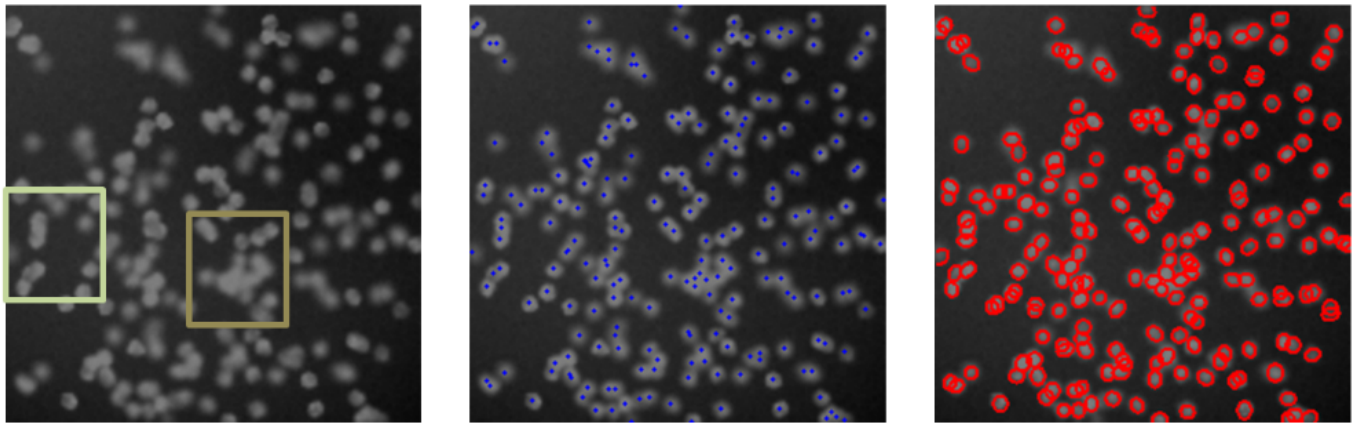

- Markov point processes are probabilistic models introduced to extend the traditional MRFs by using an object-based formalism
- Markov point processes can address object recognition problems by directly manipulating parametric entities in dynamic graphs,whereas MRFs are restricted to labeling problems in static graphs

- Contributions:
  - Contrary to the conventional MCMC sampler which evolves solution by successive perturbations, it can perform a large number of perturbations simultaneously
  - Proposes an efficient mechanism for modifications of objects by using spatial information extracted from the observed data
  - Proposes an implementation on GPU which significantly reduces computation times with respect to existing algorithms
  - To evaluate the performance of the sampler, proposes original point processe for detecting complex 3D objects in large-scale point clouds