

A graph can be represented by various geometric representations. In this work we focus on the circle packing representation. We state various concepts important for proving results regarding this kind of representation. We introduce a known proof of existence of a circle packing for planar graphs and a proof of existence of a primal-dual circle packing for 3-connected graphs. Next, we focus on computational complexity of extending the representation for a given partial circle packing. We examine the proof of the theorem stating that deciding whether such an extension exists is an NP-hard problem. We introduce our theoretical algorithm for extension construction based on real RAM machine.