Floppy Rigidity: circle packing via discrete schwarzian derivatives

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Circle packings are configurations of circles associated
with triangulations and are normally computed and manipulated by means
of their radii. Uniqueness results (under appropriate side conditions) are
rightly considered a manifestation of rigidity, and the formal
linkages to classical geometric rigidity theory are beginning to be
exploited.

This talk, however, concerns a new approach to circle packing based on
a discrete version of the classical schwarzian derivative. The
parameters involved are associated with edges in the dual of the
triangulation. These parameters have the distinct advantage of being
Moebius invariant, meaning in particular that they might overcome the
serious hurdles faced when circle packing on the sphere or on projective
surfaces.

The parameters also have the distinct disadvantage of being Moebius
invariant. In the talk I will experiment with these "schwarzian"
parameters, and the term that first comes to mind may be "floppy"
rather than "rigid". Though experiments are the opening gambit, and
may aid our intuition and provide some insight, ultimately there needs
to be some rigidity formulation that brings things together. I'm
speaking in hopes that you can help find it.