Sphere eversions
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It is possible to turn a sphere inside-out without making creases by allowing it to self-intersect: this is called an eversion. It was discovered by Smale in the late 50's. He gave a proof but did not describe an explicit eversion.

Many people got interested in this puzzle and proposed different explicit ways of doing it, including Thurston and Sullivan. This also generated many beautiful drawings and movies.

In the first part I will state the problem, and depending on available time, review existing methods, and tell my personal experience in trying to do it my own way.

In the second part I will detail practical aspects of producing a movie and corresponding 3D prints.