Linkages, networks of nearly rigid bars meeting at freely rotating joints, serve as a simple mathematical model underpinning a variety of physical systems, from molecules to disordered spring networks to origami. Recent advances in fabrication such as 3D printing has driven a resurgence of interest in designing mechanical systems based on linkages that can serve as “mechanical meta-materials”, materials whose properties can be controlled by cleverly designing their structure. While this idea is powered by an old adage, “One can design a linkage which will sign your name!”, in practice it turns out to be very hard to do. I will discuss recent work in our group on understanding the mechanics of origami and other meta-materials from the point of view of designing and controlling “singularities,” places where the configuration space of a mechanism fail to be smooth. Though rare in principle, they are common in practice. I will discuss how this sheds light on the surprising rigidity of very under-coordinated networks of springs when stretched and how these ideas arise in origami folding.