Like many mathematical systems, elections are complex and sensitive to detail. Unlike mathematical systems, elections affect and are affected by their messy real-world context. How can mathematicians effectively and realistically contribute to efforts to make elections both fair and trusted?

One approach is to apply data science and predictive analytics to real-time election oversight by building tools to identify anomalies in the preliminary election results available on and shortly after Election Day. The analysis, if done quickly enough, can allow for timely investigation and appropriate consequences before election results are finalized. We will discuss progress and challenges in carrying out this program. (Received September 11, 2019)