Let $\mathcal{M}_g$ be the moduli space of closed Riemann surfaces of genus $g \geq 2$. The maximal injectivity radius function $r_{\text{max}}$ on $\mathcal{M}_g$ is the function which assigns to each surface its maximal injectivity radius. We call a surface in $\mathcal{M}_g$ extremal if it attains the maximum of $r_{\text{max}}$. It is known that there exist 9 extremal surfaces of genus two up to isomorphism. In this talk we give a model of the Teichmüller space $\mathcal{T}_2$ of genus two in $\mathbb{R}^7$ by using hyperbolic octagons, and give examples of mapping classes acting on $\mathcal{T}_2$ in terms of 7 variables. Investigating the images of marked extremal surfaces under these mapping classes, we estimate a bound of distances between extremal surfaces in $\mathcal{M}_2$. (Received January 26, 2019)