Online Optimization with  $\boldsymbol{b}_k$  = constant and time-varying Hessian Online gradient 10<sup>2</sup> Control-based Sys ID ARX  $10^{1}$ Control-based Baseline Tracking error  $^{10_{-1}}$ 10<sup>-3</sup>  $10^{-4}$ 100 200 300 400 500 Time