Feedback control has the advantage of being relatively insensitive to stochastic fluctuation while also adaptive to changes in their environment. However, how feedback control enhances the robustness in spatial dynamics remains unclear. In this talk, I will discuss a variety of spatial models arising from the studies of cell polarization, stem cell lineage and tissue patterning. Our mathematical and computational results show that feedback control can achieve robust cell polarization against different stochastic effects; feedback control on the stem cell cycle is necessary for forming temporary “stem cell niche” that forms an important part of tissue stratification. Our findings explain the experimental results of our collaborators on a mechanistic level and provide guidelines for making advances in biology.