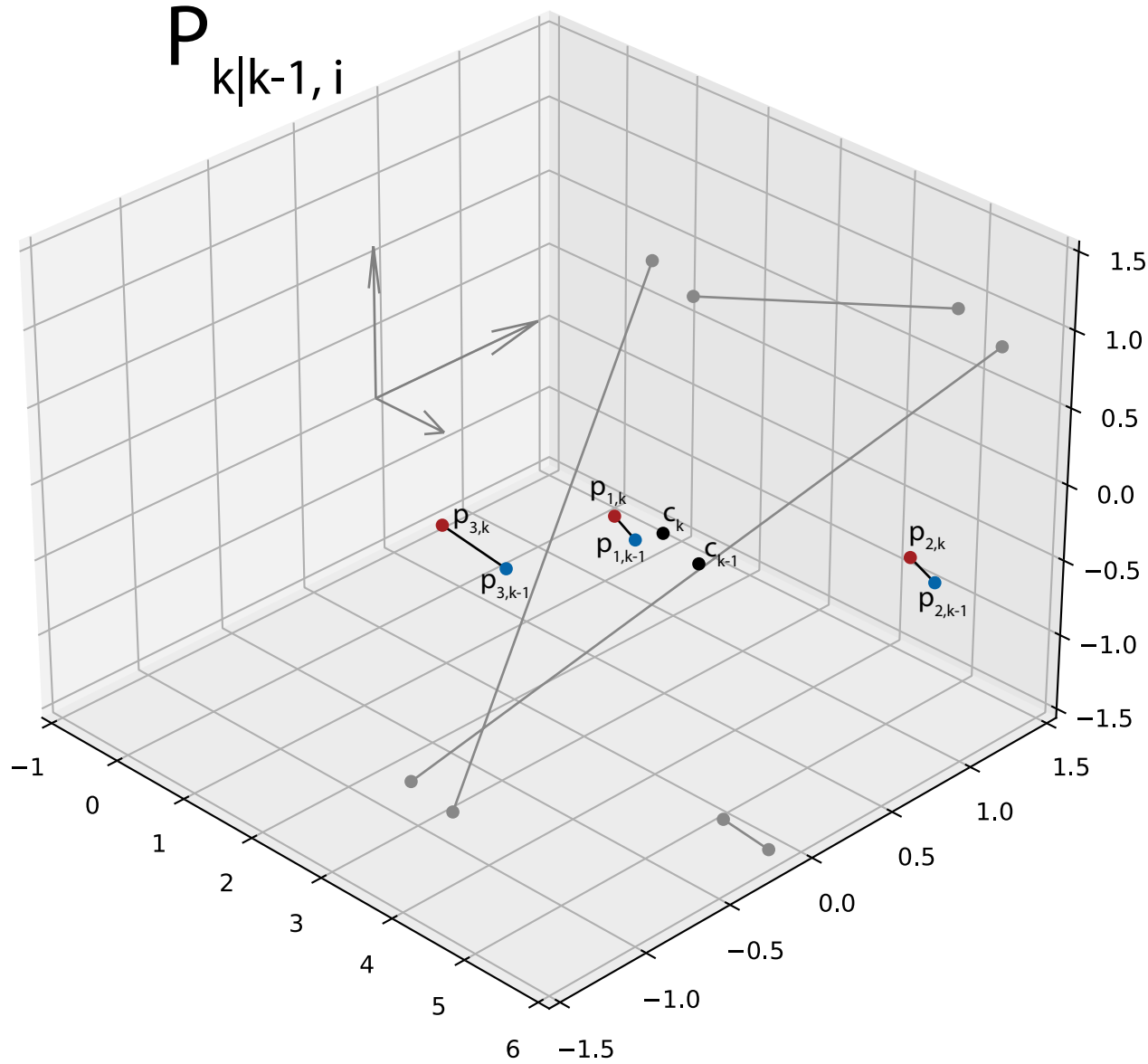Rigid motion analysis on random feature pairs