We consider a class of nonlinear Schrödinger equations (NLS) subject to strong anisotropic confining forces by, either, electric, or constant magnetic fields. Introducing a small adiabatic parameter, we study the limit as this parameter tends to zero. Using a high-frequency averaging technique we rigorously derive effective lower dimensional NLS type models. In particular we obtain a derivation of the LLL equation ("lowest Landau level equation") as a limiting model.