The Choquard equation, also known as the nonlinear Schrödinger-Newton equation is a nonlinear Schrödinger type equation where the nonlinearity is coupled with a nonlocal convolution term given by an attractive gravitational potential. We present recent results on the existence, positivity, symmetry and optimal decay properties of ground state solutions of stationary Choquard type equations under various assumptions on the decay of the external potential and the shape of the nonlinearity. This is a joint work with Jean Van Schaftingen (Louvain-la-Neuve, Belgium)