Hecke eigenvalues of elliptic modular forms often encode a wealth of arithmetic data. The Satake $p$-parameters of a Siegel modular form play a role analogous to the one played by Hecke eigenvalues in the characterization of elliptic modular forms. In this talk we present an algorithm by which we can compute the Satake $p$-parameters of a Siegel modular form $F$ if we are given the Hecke eigenvalues of $F$ with respect to the generators of the local Hecke algebra. We provide some examples. (Received October 05, 2004)