

1096-90-2507 **Sofya Chepushtanova*** (chepusht@math.colostate.edu), Department of Mathematics, 1874
Campus Delivery, Fort Collins, CO 80523-1874, and **Michael Kirby**. *Pattern Classification by
Ellipsoidal Machines Using Semidefinite Programming.*

We explore ellipsoidal machines for pattern classification problem. The goal is to find the smallest ellipsoid that contains all the points of one class and none of the other. The problem is formulated as a semidefinite program (SDP) that is more general than a linear program. The SDP can be solved successfully by most interior-point methods, in particular by primal-dual path-following algorithm. This approach, applied to diagnosis of neonatal sepsis, can be used as an effective early warning technique. (Received September 17, 2013)