The Independent Set problem is an NP-hard problem that determines, for a given graph $G$ of $n$ vertices, whether $G$ has an independent set of size at least $k$. An independent set of $G$ is a subset of the vertices of $G$ so that no two elements of the subset are joined by an edge in $G$. In this talk, we present a parameterized algorithm that solves the Independent Set problem in time $O(2^{2.1152k + 0.1028n})$. We also compare this newly developed algorithm’s performance to that of previous algorithms, and show, both in theory and in experiments, that it improves the current best run-time when $k \leq 0.07n$. (Received September 06, 2006)