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*Shifted powers in Lucas-Lehmer sequences*

We develop a general framework for finding all perfect powers in sequences derived by shifting non-degenerate quadratic Lucas-Lehmer binary recurrence sequences by a fixed integer. By combining this setup with bounds for linear forms in logarithms and results based upon the modularity of elliptic curves defined over totally real fields, we are able to answer a question of Bugeaud, Luca, Mignotte and Siksek by explicitly finding all perfect powers of the shape  $F_k \pm 2$  where  $F_k$  is the  $k$ -th term in the Fibonacci sequence. This is joint work with Vandita Patel and Samir Siksek.