what is the direct relationship between the Seifert matrix and the Fox calculus approaches to the Alexander polynomial? If they aren't the same, is there a common generalization?

Are there Seifert surfaces for virtual knots? Perhaps, is every virtual knot the thickening of a graph? Yes.

Given a knot $k$, is there a combinatorial count of a graph whose thickening is $k$?
(Notes for the signature program written in Poland)