

LUCA MAESTRINI, **University of Technology Sydney**
Double-loop Expectation Propagation for Statistical Models

Despite recent developments, issues and challenges involved in practical implementation of expectation propagation in Statistics have partially been explored. Expectation propagation is an intuitive variational approximation scheme which converges in many practical cases, but not always. We take advantage of a double-loop prescription for expectation propagation, guaranteed to converge to a local minimum of a likelihood lower bound, to derive an explicit form for simple statistical models. Our contributions show what is exactly involved in deriving and implementing double-loop expectation propagation and how to exploit connections with the standard single-loop version. (Joint work with Linda S.L. Tan and Matt P. Wand.)