

1135-90-1322

Youssef Qranfal* (qranfaly@wit.edu), 550 Huntington Avenue, Boston, MA 02115. *Filtering and Positivity Incorporation.*

Often times, the solution of a filtering reconstruction problem lacks the required property of being positive. The projected Kalman method was introduced to solve for filtering and positivity. However, both filtering and positivity are done in two successive steps rather than both done at once. Moreover, this method embeds a major drawback. As a remedy, two filtering and positivity incorporation algorithms, the SMART Filter and the EM Filter, are presented. They are validated numerically by applying them to solve the ill-posed inverse problem of dynamic image reconstruction in medical imaging. (Received September 27, 2017)