Algorithm 1: Algorithm for Jackknife Variance Estimator

$df \leftarrow n \times m$ matrix with missing observations.

df^j is the j^{th} jackknife sample with k observation dropped and is of size $n - k$

In many cases $\binom{n}{k}$ is a large value, which makes obtaining all possible jackknife subsamples infeasible. As such, an arbitrarily large number of subsamples are generated, denoted by j.

for $i \leftarrow 1$ **to** j **by** 1 **do**
  if df^j *has any missing observations* **then**
    Impute df^j using MICE algorithm to obtain m complete versions.
  else
  end
end

for $i \leftarrow 1$ **to** j **by** 1 **do**
  if df^j *is imputed* **then**
    Apply analysis model to obtain a vector of length m containing estimates.
  else
    if df^j *is NOT imputed* **then**
      Apply analysis model to obtain estimate.
    end
  end
end

$$\hat{x}_{jack} = \frac{1}{m \times j + C} \sum_{i=1}^{m \times j + C} x_i \tag{1}$$

Where C denotes the number of jackknife subsamples that did not have any missing observations and, thus, did not need to be imputed.

Finally, the confidence interval will take on the form

$$(\hat{x}_{jack}^{\alpha/2}, \hat{x}_{jack}^{1-(\alpha/2)}) \tag{2}$$