1. Apply an initial load $\boldsymbol{F}_n$ at a random location $\boldsymbol{x}$ on the model

2. Read node coordinates : total displacement $\boldsymbol{d}$ and the reaction forces $\boldsymbol{F}_{\mathrm{R}}$ at each node as a result of $\boldsymbol{F}_n$

3. Group these forces into two resultant force vectors: one in the same direction $\boldsymbol{F}_{\mathrm{Ri}}$ and one in the opposite direction $\boldsymbol{F}_{\mathrm{Ro}}$ of the original applied load

4. For each node, use cross product $\boldsymbol{r}\times\boldsymbol{F}$ to calculate the resulting moments from the reaction force $\boldsymbol{F}_{\mathrm{R}}$ at that node about the point of original force application and sum the moments to determine $\boldsymbol{M}_{\mathrm{i}}$ and $\boldsymbol{M}_{\mathrm{o}}$

NB. $\boldsymbol{M}_{\mathrm{i}} = \boldsymbol{r}_{\mathrm{i}} \times \boldsymbol{F}_{\mathrm{Ri}}$ and $\boldsymbol{M}_{\mathrm{o}} = \boldsymbol{r}_{\mathrm{o}} \times \boldsymbol{F}_{\mathrm{Ro}}$

5. Determine the effective locations of the two force vectors via $\boldsymbol{r}_{\mathrm{i}}$ and $\boldsymbol{r}_{\mathrm{o}}$ as

$\boldsymbol{r}_{\mathrm{mag}} = |\boldsymbol{M}|/|\boldsymbol{F}|$ with $\boldsymbol{r} = \boldsymbol{r}_{\mathrm{unit}}\,\boldsymbol{r}_{\mathrm{mag}}$

The locations given as $\boldsymbol{x}_{\mathrm{i}} = \boldsymbol{x} + \boldsymbol{r}_{\mathrm{i}}$ and $\boldsymbol{x}_{\mathrm{o}} = \boldsymbol{x} + \boldsymbol{r}_{\mathrm{o}}$

6. Estimate the midpoint as a new location for force application $\boldsymbol{F}_{n+1}$ as

$(\boldsymbol{x}_{\mathrm{i}} + \boldsymbol{x}_{\mathrm{o}})/2$

7. Iterate until $\boldsymbol{M}_{\mathrm{i}}$ or $\boldsymbol{M}_{\mathrm{o}} \cong 0$