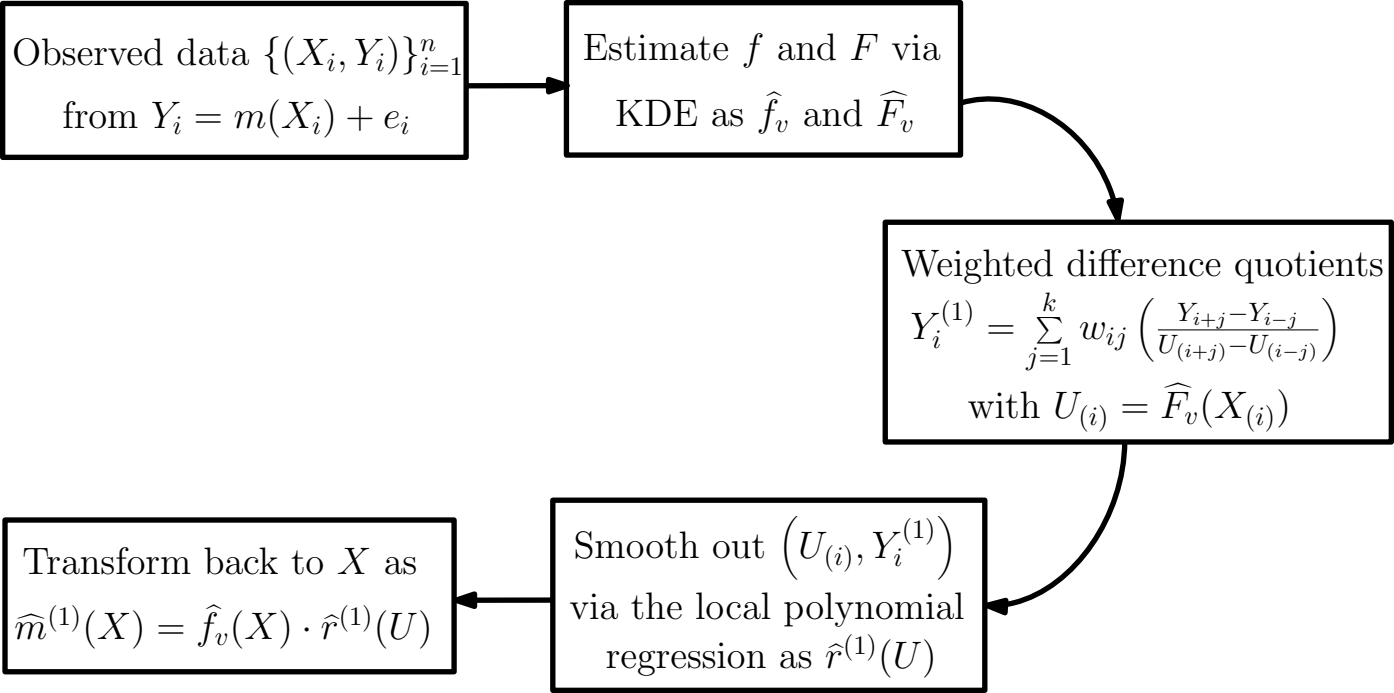
Observed data $\{(X_i, Y_i)\}_{i=1}^n$
from $Y_i = m(X_i) + e_i$
Estimate f and F via
KDE as $\widehat{f}_v$ and $\widehat{F}_v$
Weighted difference quotients
$Y_i^{(1)} = \sum_{j=1}^{k} w_{ij} \left(\frac{Y_{i+j} - Y_{i-j}}{U_{(i+j)} - U_{(i-j)}} \right)$
with $U_{(i)} = \widehat{F}_v(X_{(i)})$
Smooth out $\left(U_{(i)}, Y_i^{(1)}\right)$
via the local polynomial
regression as $\hat{r}^{(1)}(U)$
Transform back to X as
$\widehat{m}^{(1)}(X) = \widehat{f}_v(X) \cdot \hat{r}^{(1)}(U)$