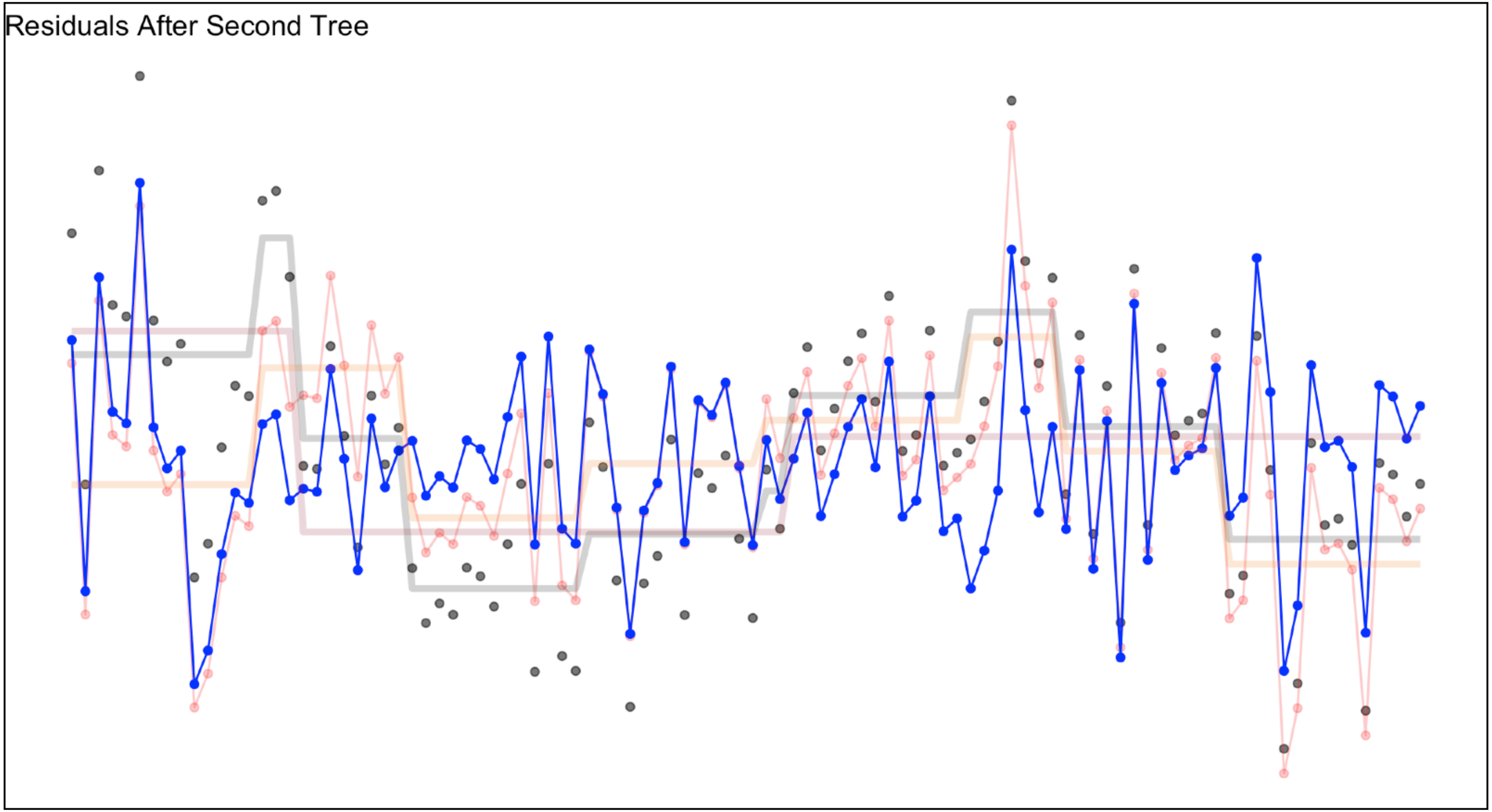
Gradient Boosting Trees



Gradient Boosting Trees: The Algorithm

1. Fit a simple model $T^{(0)}$ on the training data $\{(x_1, y_1), \ldots, (x_N, y_N)\}$
   Set $T \leftarrow T^{(0)}$ and compute residuals $\{r_1, \ldots, r_N\}$ fort T
2. Fit a simple model $T^{(1)}$ to the current **residuals**, i.e. train using $\{(x_1, r_1), \ldots, (x_N, r_N)\}$
3. Set $T \leftarrow T + \lambda T^{(1)}$ where λ is the learning rate (usually 0.01 or 0.001)
4. Compute residuals, set $r_n \leftarrow r_n - \lambda T^{(i)}(x_n),\ n = 1,\ldots,N$
5. Repeat steps 2-4 until stopping condition is met