Biarc Approximation

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Biarc (black) and Joint Circle (gray)
Biarc Interpolating G1 Data

\[ P_0 = c(t_0) \]
\[ U_0 = \frac{c'(t_0)}{\|c'(t_0)\|} \]
\[ P_1 = c(t_1) \]
\[ U_1 = \frac{c'(t_1)}{\|c'(t_1)\|} \]
Biarc Approximation
Biarc construction: (a) the locus of all possible joints $j$ forms a circle $O$ that intersects the given curve at a point $j$, and (b) a pair of $G^1$ arcs interpolating the end conditions and meeting at the joint $j$. 
Distance Map for Circular Arcs