

?

Scipy

pyOpt

$\min_{x_k, x_{k+1}} f(x)$?

$??$
 A
 B
 C
 A
 $r_{0,1}$
 $r_{0,3}$
 0
 B
 s_3
 $r_{0,3}$
 $r_{3,2}$
 C
 $hidden/.style =$
 $verythick,dashed,polygon/.style =$
 $verythick,black,axis/.style =$
 $-,blue,thick,point/.style =$
 $verythick,black]$
 $r_{0,3}$
 $r_{0,1}$
 $r_{3,0}$
 s_3
 $\bullet B$
 $\bullet A$
 $\bullet C$
 $?C$
 A
 B
 C
 -1
 N_s
 N_s
 $?$
 $80-$
 $80-$
 $algorithm$
 $re-$
 $lated$
 $op-$
 $ti-$
 $miza-$
 $tion$
 $solver$
 $re-$
 $lated$
 N_s
 n_{knots}
 T_p
 T_p
 $??$
 $??$
 $first$
 $in-$
 ter
 $last$
 $MAXIT_{first}$
 $MAXIT_{inter}$
 $MAXIT_{last}$
 10^{-3}
 $max-$
 num
 $com-$
 $pu-$
 $ta-$
 $tional$
 $time$
 T
 $max-$
 num
 $com-$
 $pu-$
 $ta-$
 $tional$
 $timeT_c$
 T_c
 T_p
 N_s
 N_{knots}
 $max-$
 num
 $com-$
 $pu-$
 $ta-$
 $tional$
 $timeT_c$
 $??$
 $??$
 N_s
 N_{knots}
 $max-$
 num
 $com-$
 $pu-$
 $ta-$
 $tional$
 $timeT_c$
 T_c/T_p
 N
 $max-$
 num
 $com-$
 $pu-$
 $ta-$
 $tional$
 $timeT_c$
 T_c/T

N_s
 N_{knots}
 N_{knots}
 N_{max-}
 N_{sym}
 N_{pu-}
 N_{ta-}
 N_{tional}
 N_{time}
 N_{T_c}
 $3_{N_{knots_4}/mcttc-tctp.eps}$ *Four internal knots. Average variance between lines is $\times 10^{-2}$*
 $3_{N_{knots_5}/mcttc-tctp.eps}$ *Five internal knots. Average variance between lines is $\times 10^{-2}$*
 $3_{N_{knots_6}/mcttc-tctp.eps}$ *Six internal knots. Average variance between lines is $\times 10^{-2}$*
 $??$
 $??$
 T_p
 T_c
 N_s
 N_{knots}
 v_{max} 1.00m/s
 ω_{max} 5.00rad/s
 q_{inital} $[-0.050.00\pi/2]^T$
 q_{final} $[0.107.00\pi/2]^T$
 u_{final} $[0.000.00]^T$
 u_{final} $[0.000.00]^T$
 O_0 $[0.551.910.31]$
 O_1 $[-0.083.650.32]$
 O_2 $[0.384.650.16]$
 $results/p_{30.482.41140.0011540205.00.13.00.51.010.0}/multirobot-$
 $path.png$ *Robot' s path.*
 $results/p_{30.482.41140.0011540205.00.13.00.51.010.0}/multirobot-$
 $vw.png$ *Robot' sinput.*
 N_{max-}
 N_{sym}
 N_{pu-}
 N_{ta-}
 N_{tional}
 N_{time}
 N_{T_c}
 $7.57s$

$6_{N_k}nots_4/mcttc-tctp.eps$ *Four internal knots. Average variance between lines is* $\times 10^{-2}$
 $6_{N_k}nots_5/mcttc-tctp.eps$ *Five internal knots. Average variance between lines is* $\times 10^{-2}$
 $6_{N_k}nots_6/mcttc-tctp.eps$ *Six internal knots. Average variance between lines is* $\times 10^{-2}$
 T_p
 T_c
 N_s
 N_{knots}
 v_{max} 1.00m/s
 ω_{max} 5.00rad/s
 q_{inital} $[-0.050.00\pi/2]^T$
 q_{final} $[0.107.00\pi/2]^T$
 u_{final} $[0.000.00]^T$
 u_{final} $[0.000.00]^T$
 O_0 $[-0.351.360.39]$
 O_1 $[0.212.530.33]$
 O_2 $[-0.324.860.23]$
 O_3 $[0.103.980.31]$
 O_4 $[0.621.250.18]$
 O_5 $[1.173.660.25]$
 $results/p_{61.283.21260.0011540205.00.13.00.51.010.0}/multirobot-path.png$ *Robot' s path.*
 $results/p_{61.283.21260.0011540205.00.13.00.51.010.0}/multirobot-vw.png$ *Robot' sinput.*
 $mat-$
 lum
 $pu-$
 $ta-$
 $tional$
 $time$
 T_c
 $7.76s$

$$\begin{array}{l} T_c^c \\ T_p^p \\ N_s^s \\ 3_{N_k} nots_6 / tot10.eps \\ 10 \\ 3_{N_k} nots_6 / tot11.eps \\ 11 \\ 3_{N_k} nots_6 / tot12.eps \\ 12 \\ T_c^c \\ T_p^p \\ N_s^s \\ N_s^s \\ T_c^c \end{array}$$