

Profile Summary (Total time: 2409.507 s)

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Function Name	Calls	Total Time (s)	Self Time* (s)	Total Time Plot (dark band = self time)
Boss_2_RC_nnls_accuracy	1	2409.420	0.121	
clientconstraint fixedrank equality nonneg lowrankcompletion	1	2409.269	0.042	
rlbfgs	14277	1717.911	32.647	
linsearch_hint	130224	941.883	15.774	
getCost	1692842	826.184	129.793	
exactpenaltyViaSmoothinglqh	2	601.258	4.116	
exactpenaltyViaSmoothinglse	1	600.714	1.538	
almbddmultiplier	1	600.346	0.341	
SQP	1	600.151	23.088	
hessianmatrix	3113	506.210	4.265	
getHessian	199232	475.823	8.712	
getCostGrad	144501	453.594	2.558	
SQP>@(X,d)hessLagrangian(X,d,mus,lambdas)	99616	447.979	0.461	
SQP>hessLagrangian	99616	447.518	97.737	
getGradient	275858	442.161	19.468	
fixedrankembeddedfactory>projection	17998752	429.449	343.340	
...nk_equality_nonneg_lowrankcompletion>@(Y)nnccostfun(Y,row,col)	56756700	375.410	148.422	
almbddmultiplier>@(X)cost_alm(X,problem0,rho,lambdas,gammas)	469916	355.277	16.182	
almbddmultiplier>cost_alm	469916	339.095	96.873	
fixedrankembeddedfactory>ehess2rhess	7271968	287.819	109.091	
...tpenaltyViaSmoothinglse>@(X)grad_exactpenalty(X,problem0,rho)	56871	278.963	1.995	
exactpenaltyViaSmoothinglse>grad_exactpenalty	56871	275.898	99.153	
...nstraint_fixedrank_equality_nonneg_lowrankcompletion>nnccostfun	56756700	226.989	226.989	
fixedrankembeddedfactory>project_tangent	4237924	203.694	17.832	
...ctpenaltyViaSmoothinglqh>@(X)cost_exactpenalty(X,problem0,rho)	247638	161.474	8.398	
exactpenaltyViaSmoothinglqh>cost_exactpenalty	247638	153.075	50.515	
...tpenaltyViaSmoothinglqh>@(X)grad_exactpenalty(X,problem0,rho)	78747	140.671	2.735	
fixedrankembeddedfactory>lincomb	19874179	138.141	138.141	
exactpenaltyViaSmoothinglqh>grad_exactpenalty	78747	135.024	45.938	
...nk_equality_nonneg_lowrankcompletion>@(Y)eqccostfun(Y,row,col)	18605718	128.458	51.218	
...nstraint_fixedrank_equality_nonneg_lowrankcompletion>eqccostfun	18605718	77.241	77.241	
...ctpenaltyViaSmoothinglse>@(X)cost_exactpenalty(X,problem0,rho)	117047	75.784	4.031	
exactpenaltyViaSmoothinglse>cost_exactpenalty	117047	71.753	24.567	
fixedrankembeddedfactory>tangent2ambient	4337540	70.183	70.183	
fixedrankembeddedfactory>apply_ambient	25270720	63.022	63.022	
rlbfgs>getDirection	130224	57.635	19.523	
StoreDB>StoreDB.getNewKey	1945530	57.291	57.291	
fixedrankembeddedfactory>apply_ambient_transpose	25270720	49.266	49.266	
fixedrankembeddedfactory>retraction	823452	46.350	46.350	
StoreDB>StoreDB.getWithShared	2527012	45.094	11.423	
StoreDB>StoreDB.remove	690100	38.933	7.857	
StoreDB>StoreDB.setWithShared	2232552	36.720	15.341	
rmfield	765452	35.420	35.420	
StoreDB>StoreDB.get	2527012	33.672	33.672	

...@ $(x.d1.d2)d1.M().*d2.M()+d1.Up().*d2.Up()+d1.Vp().*d2.Vp())$	14782566	32.482	32.482	'
exactpenaltyViaSmoothinglqh>KKT_residual	10072	32.396	2.502	
SQP>gradLagrangian	6228	23.694	9.270	
exactpenaltyViaSmoothinglse>KKT_residual	3778	22.727	0.966	
tangentorthobasis	3113	22.337	0.396	
StoreDB>StoreDB.set	2232552	21.379	21.379	
orthogonalize	3113	19.007	6.967	
...ixedrank_equality_nonneg_lowrankcompletion>@(U)constraintgrad	13511253	15.836	15.836	
SQP>KKT_residual	3114	15.698	0.701	
getEuclideanGradient	249575	15.566	6.168	
handle_light>handle_light.delete	1125206	13.691	13.691	
StoreDB>StoreDB.purge	130224	13.302	8.957	
quadprog	3113	11.479	0.488	
evaluation	14285	11.384	2.834	
ipqpdense	3113	10.338	0.407	
almbddmultiplier>@(X)grad_alm(X,problem0.rho.lambdas.gammas)	5000	10.165	0.178	
almbddmultiplier>grad_alm	5000	9.734	3.413	
exactpenaltyViaSmoothinglqh>savestats	10070	8.421	0.350	
struct2csv	6	6.746	1.759	
...drank_equality_nonneg_lowrankcompletion>@(X,U)constrainthess	7172352	6.695	6.695	
optimlib/private/interiorPointQPMex (MEX-file)	3113	6.634	6.634	
...tconstraint_fixedrank_equality_nonneg_lowrankcompletion>objcost	857820	6.261	6.261	
exactpenaltyViaSmoothinglqh>maxabsLagrangemultipliers	10070	6.085	2.042	
mergeOptions	158788	5.993	5.993	
StoreDB>StoreDB.StoreDB	1125206	5.900	3.688	
num2str	168276	5.875	1.349	
SQP>@(x)loneMeritFunction(x,rho)	6241	5.073	0.053	
SQP>loneMeritFunction	6241	5.020	1.259	
rlbfgs>savestats	144501	4.808	4.162	
exactpenaltyViaSmoothinglqh>complementaryPowerViolation	10072	4.732	1.512	
num2str>handleNumericPrecision	124878	3.663	0.288	
num2str>convertUsingRecycledSprintf	124878	3.376	3.376	
...drank_equality_nonneg_lowrankcompletion>euclidean_objhessian	99616	3.341	1.291	
exactpenaltyViaSmoothinglse>savestats	3777	3.056	0.129	
...@$(x,d)\sqrt{\text{norm}(d.M,'fro')^2+\text{norm}(d.Up,'fro')^2+\text{norm}(d.Vp,'fro')^2}$	980668	3.001	3.001	
fixedrankembeddedfactory>randomvec	99616	2.930	2.266	
exactpenaltyViaSmoothinglse>maxabsLagrangemultipliers	3777	2.260	0.777	
stoppingcriterion	144501	2.249	2.249	
handle_light>handle_light.handle_light	1125206	2.212	2.212	
createExitMsg	3113	2.125	0.830	
SQP>const_evaluation	3114	1.952	0.627	
exactpenaltyViaSmoothinglse>complementaryPowerViolation	3778	1.701	0.565	
SQP>complementaryPowerViolation	3114	1.520	0.483	
almbddmultiplier>KKT_residual	435	1.509	0.121	
...factory>@()sprintf('Manifold of %dx%d matrices of rank %d',m,n,k)	86982	1.476	1.476	
...onstraint_fixedrank_equality_nonneg_lowrankcompletion>eobjgrad	249397	1.430	1.430	
createExitMsg>msgArgs2Str	6226	0.954	0.066	
schur	3113	0.767	0.767	
presolve	3113	0.698	0.342	
applyStatsfun	147615	0.666	0.666	

canGetEuclideanGradient	249575	0.573	0.573	
exactpenaltyViaSmoothinglqh>manifoldPowerViolation	10072	0.489	0.120	
canGetLinesearch	130224	0.451	0.451	
fixedrankembeddedfactory>tangent	99616	0.444	0.444	
optimget	49808	0.429	0.159	
almbddmultiplier>savestats	434	0.401	0.019	
int2str	27833	0.356	0.356	
createExitMsg>stripHTMLTags	9339	0.341	0.341	
prepareOptionsForSolver	3113	0.313	0.313	
num2str>cellPrintf	15565	0.290	0.290	
optimget>optimgetfast	49808	0.270	0.270	
rank	17409	0.251	0.251	
almbddmultiplier>@(x)complementaryPowerViolation(x,rho,lambdas)	435	0.238	0.005	
almbddmultiplier>complementaryPowerViolation	435	0.233	0.069	
num2str>strvrcat	15565	0.216	0.084	
exactpenaltyViaSmoothinglse>manifoldPowerViolation	3778	0.189	0.048	
SQP>savestats	3114	0.169	0.149	
rlbfgs>@(t)t	130224	0.157	0.157	
SQP>manifoldPowerViolation	3114	0.157	0.043	
postsolve	3113	0.153	0.153	
presolve>forcingRedundantConstr	3113	0.140	0.140	
strjust	15565	0.132	0.052	
presolve>emptyRows	3113	0.107	0.107	
getGlobalDefaults	14282	0.083	0.083	
computeKKTErrorForQPLP	3113	0.082	0.082	
strjust>strjustOnChar	15565	0.080	0.080	
canGetCost	14277	0.073	0.073	
checkbounds	3113	0.071	0.071	
...edfactory>@(X)struct('M',zeros(k,k),'Up',zeros(m,k),'Vp',zeros(n,k))	3113	0.067	0.067	
optimlib/private/classifyBoundsOnVars	3113	0.057	0.045	
getFileInfoForToolstrip	1	0.055	0.019	
isoptimargdbl	3113	0.044	0.044	
canGetGradient	14277	0.033	0.033	
SQP>musposiPowerViolation	3114	0.026	0.026	
getSystemObjectInfo	1	0.025	0.001	
getSystemObjectInfo	1	0.024	0.002	
almbddmultiplier>manifoldPowerViolation	435	0.024	0.007	
isSystemObjectFile	1	0.023	0.002	
ipqpdense>i_unwrapInternalOptions	3113	0.023	0.023	
isSystemObjectCode	1	0.020	0.000	
isSystemObjectCode>plsSystemObjectCode	1	0.020	0.008	
mtree.mtree>mtree.mtree	2	0.019	0.005	
@mtree/private/mtree_info	10	0.017	0.006	
dlmwrite	1	0.015	0.001	
dlmwrite>parseinput	1	0.014	0.002	
canGetHessian	3113	0.013	0.013	
optimlib/private/classifyBoundsOnVars>equalFloat	3113	0.012	0.012	
cell.ismember	1	0.012	0.008	
getCode	1	0.011	0.009	

presolve>freeLinearColumnSingletons	3113	0.011	0.011	
@mtree/private/nodeinfo	1	0.010	0.010	
presolve>infiniteRHS	3113	0.010	0.010	
fixedrankembeddedfactory>@()(m+n-k)*k	6226	0.009	0.009	
mtree.mtfind	1	0.008	0.004	
presolve>fixVarsEqBnds	3113	0.008	0.008	
presolve>unconstrVars	3113	0.008	0.008	
functionNameClashCheck	3113	0.007	0.007	
fixedrankembeddedfactory>random	6	0.007	0.002	
presolve>dbltnEqualities	3113	0.007	0.007	
presolve>singletonIneqs	3113	0.007	0.007	
presolve>singletonEqs	3113	0.007	0.007	
mdbstatus	1	0.006	0.000	
close	1	0.006	0.001	
mdbstatus>localGetFileBreakpoints	1	0.006	0.006	
RandStream.RandStream>getMethodNames	1	0.006	0.006	
stiefelfactory>@()(qr_unique(randn(n,p,k,array_type)))	12	0.005	0.002	
almbddmultiplier>maxabsLagrangemultipliers	434	0.005	0.005	
close>safegetchildren	1	0.005	0.002	
optimset	1	0.005	0.005	
constraintsdetail	6	0.005	0.005	
fileparts	3	0.004	0.001	
fixedrankembeddedfactory	1	0.004	0.003	
mtree.restrict	1	0.004	0.002	
allchild	1	0.004	0.003	
cell.unique	2	0.003	0.002	
qr_unique	12	0.003	0.003	
nthroot	7	0.003	0.003	
ParseTreeUtils>ParseTreeUtils.getTree	1	0.002	0.000	
mtree.pathit	1	0.002	0.001	
RandStream.RandStream>RandStream.RandStream	1	0.002	0.001	
mtree.wholetree	2	0.002	0.002	
fileparts>getExtension	3	0.002	0.002	
mfile	1	0.001	0.001	
fileparts>unixExecution	3	0.001	0.001	
stiefelfactory	2	0.001	0.001	
...straint_fixedrank_equality_nonneg_lowrankcompletion>check_rank	4	0.001	0.001	
...raint_fixedrank_equality_nonneg_lowrankcompletion>egradzerofun	178	0.001	0.001	
ismember	1	0.001	0.000	
cell.unique>celluniqueR2012a	2	0.001	0.001	
...constraint_fixedrank_equality_nonneg_lowrankcompletion>zerofun	422	0.001	0.001	
randsample	1	0.001	0.001	
ismember>ismemberR2012a	1	0.001	0.000	
allchild>getchildren	1	0.000	0.000	
mpower	6	0.000	0.000	
num2cell	1	0.000	0.000	
ParseTreeUtils>ParseTreeUtils.isTreeError	1	0.000	0.000	
fileread	1	0.000	0.000	
fileparts>returnCharOrString	3	0.000	0.000	

partialMatchString	2	0.000	0.000	
mtree.mtree>validateInput	2	0.000	0.000	
ismember>ismemberBuiltinTypes	1	0.000	0.000	
mtree.iskind	1	0.000	0.000	
@mtree/private/collect_qualifiers	1	0.000	0.000	
close>getEmptyHandleList	1	0.000	0.000	
RandStream.RandStream>RandStream.delete	1	0.000	0.000	
optimfun/private/uselargeoptimstruct	1	0.000	0.000	
optimset>checkfield	1	0.000	0.000	
RandStream.randperm	1	0.000	0.000	
mtree.root	1	0.000	0.000	
RandStream.RandStream>getargs	1	0.000	0.000	
RandStream.RandStream>RandStream.algName	1	0.000	0.000	
allchild>@()set(rootobj,'ShowHiddenHandles',Temp)	1	0.000	0.000	
mtree.isempty	2	0.000	0.000	
uitools/private/allchildRootHelper	1	0.000	0.000	
@mtree/private/collect_qualifiers>is_qual	1	0.000	0.000	
dlmwrite>setdlm	1	0.000	0.000	
mtree.count	1	0.000	0.000	
Type>Type.Type	4	0.000	0.000	
optimset>displayType	1	0.000	0.000	
cellstr	1	0.000	0.000	
close>checkfigs	1	0.000	0.000	
close>request_close	1	0.000	0.000	
optimset>onDeprecationPathOptionCheck	1	0.000	0.000	
optimfun/private/optimoptiongetfields	1	0.000	0.000	
webwindowmanager>webwindowmanager.delete	1	0.000	0.000	

*Self time is the time spent in a function excluding any time spent in child functions. The time includes any overhead time resulting from the profiling process.