## Profile Summary (Total time: 3850.989 s)

Generated 01-Mar-2021 20:53:29 using performance time.

Function Name	Calls	Total Time (s)	Self Time* (s)	Total Time Plot (dark band = self time)
Boss_3_RC_nnlc_robustness	1	3850.988	0.127	
clientconstraint_fixedrank_equality_nonneg_lowrankcompletion	40	3850.737	0.170	
<u>rlbfgs</u>	23194	3627.126	82.471	
almbddmultiplier	40	2294.894	6.514	
linesearch_hint	337174	2201.497	48.284	
getCost	5516064	1790.480	376.121	
almbddmultiplier>@(X)cost_alm(X,problem0,rho,lambdas,gammas)	2372919	919.491	57.687	
almbddmultiplier>cost_alm	2372919	861.804	279.707	
<u>exactpenaltyViaSmoothinglse</u>	40	787.055	1.422	
<u>exactpenaltyViaSmoothinglqh</u>	80	656.178	2.155	
<u>getCostGrad</u>	360368	620.265	6.236	
nk_equality_nonneg_lowrankcompletion>@(Y)nncostfun(Y,row,col)	96582169	607.317	257.253	
getGradient	577563	602.845	37.232	
fixedrankembeddedfactory>project_tangent	11615392	495.754	45.111	
fixedrankembeddedfactory>projection	20105592	488.286	383.944	_
nstraint fixedrank equality nonneg lowrankcompletion>nncostfun	96582169	350.063	350.063	-
tpenaltyViaSmoothinglse>@(X)grad_exactpenalty(X,problem0,rho)	100653	309.871	2.725	
exactpenaltyViaSmoothinglse>grad exactpenalty	100653	305.934	112.537	
nk equality nonneg lowrankcompletion>@(Y)eqcostfun(Y,row,col)	32997173	215.696	89.711	
StoreDB.getNewKey	5845028	168.445	168.445	
fixedrankembeddedfactory>tangent2ambient	11635228	166.719	166.719	-
rlbfgs>getDirection	337174	152.380	52.655	<u>-</u>
fixedrankembeddedfactory>retraction	2726617	149.963	149.963	
fixedrankembeddedfactory>lincomb	21583029	143.803	143.803	-
StoreDB>StoreDB.remove	2380669	134.994	28.029	<u>-</u>
tpenaltyViaSmoothinglqh>@(X)grad_exactpenalty(X,problem0,rho)	109604	129.095	2.968	
StoreDB.getWithShared	7113619	126.923	32.339	1
nstraint fixedrank equality nonneq_lowrankcompletion>eqcostfun	32997173	125.985	125.985	
exactpenaltyViaSmoothinglgh>grad_exactpenalty	109604	124.212	42.867	
	2603731	119.114	119.114	1
rmfield				
almbddmultiplier>@(X)grad_alm(X,problem0,rho,lambdas,gammas)	95467	116.322	2.588	
almbddmultiplier>grad_alm	95467	106.029	37.611	
StoreDB>StoreDB.setWithShared	6444954	105.951	43.825	
StoreDB>StoreDB.get	7113619	94.584	94.584	
SQP	40	93.882	3.459	-
<u>ctpenaltyViaSmoothinglqh&gt;@(X)cost_exactpenalty(X,problem0,rho)</u>		90.341	5.404	I
exactpenaltyViaSmoothinglqh>cost_exactpenalty	203660	84.937	28.486	I
<u>ctpenaltyViaSmoothinglse&gt;@(X)cost_exactpenalty(X,problem0,rho)</u>	164458	72.694	4.360	I
hessianmatrix	831	72.663	0.718	-
exactpenaltyViaSmoothinglse>cost_exactpenalty	164458	68.333	23.510	I
<u>getHessian</u>	39672	67.396	1.891	I
fixedrankembeddedfactory>apply_ambient	21011028	62.260	62.260	I
StoreDB>StoreDB.set	6444954	62.126	62.126	I
SQP>@(X,d)hessLagrangian(X,d,mus,lambdas)	19836	61.352	0.098	I

Section   Sect	SQP>hessLagrangian	19836	61.254	12.421	"
	fixedrankembeddedfactory>apply_ambient_transpose	21011028	46.145	46.145	I
StoreOBE-StoreOBE Journey	fixedrankembeddedfactory>ehess2rhess	905436	40.599	14.827	
	handle_light>handle_light.delete	3127185	37.455	37.455	I
altroaddmuttplierckKI_pealatual         12884         28.891         2.147         Image: Control of the Control of C	StoreDB>StoreDB.purge	337174	37.295	25.146	I
getEuclideanGradientconstraint fisedeank. equality, normeg_lowaratecompletenn-cliposet shuckEcker shuckEck	$ @(\underline{x},\underline{d1},\underline{d2})\underline{d1}.\underline{M(:)}.^{!*}\underline{d2}.\underline{M(:)}+\underline{d1}.\underline{Up(:)}.^{!*}\underline{d2}.\underline{Up(:)}+\underline{d1}.\underline{Vp(:)}.^{!*}\underline{d2}.\underline{Vp(:)}$	13224356	33.911	33.911	I
	almbddmultiplier>KKT_residual	12984	28.391	2.147	I
### ### ### ### ### ### ### ### ### ##	<u>getEuclideanGradient</u>	328133	20.294	8.272	I
coactoonally/VaSmoothinglase/KKT_residual         4197         16,807         0,740         1           StoceIDE-StoceIDE         3127185         16,280         9,987         1           merge@Oddons         38,3962         14,733         14,733         1           exaluation         25514         1,8875         2,980         1           exaluation         25514         13,875         2,980         1           infloscasewistis         360086         12,277         10,391         1           interfacek, equality_nonneg_lovarakcompletione@(Ulconstraintgrad)         662067         8,518         8,518         8,518           num2str         23,8807         7,719         1,817         1,817         1,817           num2str         23,8807         7,719         1,817         1,817         1,817           SOP-@UxloreMetriFundions_trb         6005         5,786         0,03         2,278         0,003         1,927           SOP-@UxloreMetriFundions_trb         6005         5,786         0,03         2,278         0,003         1,927           SOP-@UxloreMetriFundions_trb         6005         5,786         0,03         1,924         4,920         0,003         1,927         1,924         4,920 <td>tconstraint fixedrank equality nonneg lowrankcompletion&gt;objcost</td> <td>2762600</td> <td>19.068</td> <td>19.068</td> <td></td>	tconstraint fixedrank equality nonneg lowrankcompletion>objcost	2762600	19.068	19.068	
Store DR-Store DR Store DR S	struct2csv	240	18.372	10.864	
MargaCptions   389962   14.733   14.7	exactpenaltyViaSmoothinglse>KKT_residual	4137	16.807	0.740	
evaluation   23514   1.880   1.143     evaluation   23514   13.875   2.980	StoreDB>StoreDB.StoreDB	3127185	16.280	9.987	
evaluation	<u>mergeOptions</u>	383962	14.733	14.733	
1899   12,277   10,391   10,	exactpenaltyViaSmoothinglqh>KKT_residual	6393	14.680	1.143	
	evaluation	23514	13.875	2.980	
######################################	rlbfgs>savestats	360368	12.277	10.391	
num2str         232687         7.719         1.617          @kx.d/sard(norm(d.M./fo?)*2+norm(d.Uo./fo?)*2+norm(d.Vp./fo?)*2)         1880227         7.008         7.008           handle_light-handle_light         3127185         6.293         6.293           SQP_SQL/sioneMeriFunction(s.rho)         9605         5.786         0.053           SQP-boneMeriFunction         9605         5.733         1.217           Soppingartision         19309         5.278         0.401           num2str>-bandleNumericPrecision         173909         5.278         0.401           num2str>-convertUsingRecycledSizrinff         173909         4.877         4.877           SQP_StradLagrangilan         1742         4.831         1.673           cvactorenityViaSmoothinolothesavestats         6313         4.035         0.234           almbddmuttipiler=@(x)complementaryPowerViolation(x.rho.lambdas)         12884         4.026         0.107           langenter/hobasis         831         3.907         0.089         1.171           langenter/hobasis         831         3.187         1.111         1.111           sactpenaltyViaSmoothinolothemaxabst.agrangemuttipilers         6313         2.642         0.888           vactpenaltyVaSmoothinolotheromaxabst.agrangemuttipil	ixedrank equality nonneg lowrankcompletion>@(U)constraintgrad	8162067	8.518	8.518	
@(x.d)sadt(nom(d.M.fro*)*2+nom(d.Up.fro*)*2+nom(d.Vp.fro*)*2) handle_light>handle_light	almbddmultiplier>savestats	12944	8.050	0.524	
handle_light:handle_light         3127186         6.293         6.293           SQP>@(x)loneMeritFunction(x:rhp)         9605         5.786         0.053           SQP>@(x)loneMeritFunction         9605         5.733         1.217           stoppingcriterion         360368         5.667         5.667           num2str>convertUsingRecycledSprintf         173909         5.278         0.401           SQP>gradLagrangian         1742         4.631         1.673           exactpenalityViaSmoothinglsh>savestats         6313         4.035         0.234           almbddmultiplier>@(x)complementaryPowerViolation         12844         4.026         0.107           tangentorthobasis         831         3.919         1.171           tangentorthobasis         831         3.997         0.089           orthogonalize         831         3.187         1.111           exactpenalityViaSmoothinglsh=maxabst_agrangemultioliers         6313         2.642         0.888           exactpenalityViaSmoothinglsh=maxabst_agrangemultioliers         6313         2.642         0.888           exactpenalityViaSmoothinglsh=savestats         4097         2.580         0.152          factory=@(sprintf\tManifold of %dx%d matrices of rank %d m ok         121405         2.121 <td>num2str</td> <td>232687</td> <td>7.719</td> <td>1.617</td> <td></td>	num2str	232687	7.719	1.617	
SQP-@(ts)loneMeritFunction(x.thp)  9605   5.786   0.053	$@(x,d) sqrt(norm(d.M,'fro')^2 + norm(d.Up,'fro')^2 + norm(d.Vp,'fro')^2)$	1980227	7.008	7.008	
\$QP≥ioneMeritFunction	handle_light>handle_light.handle_light	3127185	6.293	6.293	
Stoppingcriterion   360368   5.667   5.667	SQP>@(x)loneMeritFunction(x,rho)	9605	5.786	0.053	
num2str>handleNumericPrecision         173909         5.278         0.401           num2str>convertUsingRecycledSprintf         173909         4.877         4.877           SQP>gradLagrangian         1742         4.631         1.673           exactpenaltyViaSmoothinglqh>savestats         6313         4.035         0.234           almbddmultiplier~(k)(x)complementaryPowerViolation (x.rho.lambdas)         12984         4.026         0.107           almbddmultiplier-complementaryPowerViolation         12984         3.919         1.171           tangentorthobasis         831         3.907         0.089           orthogonalize         831         3.187         1.111           SQP>KKT residual         831         3.187         1.111           exactpenaltyViaSmoothinglqh>maxabsLagrangemultipliers         6313         2.642         0.888           exactpenaltyViaSmoothinglse>savestats         4097         2.580         0.152          factory=@()sprintf(Manifold of %dx%d matrices of rank %d.m.n.k)         121405         2.121         2.121           exactpenaltyViaSmoothinglse>complementaryPowerViolation         6393         2.060         0.657           applyStatsfun         361239         1.893         1.839          orstraint_fixedrank_equalty_nonneg_lowrank	SQP>loneMeritFunction	9605	5.733	1.217	
num2str>convertUsingRecycledSprintf         173909         4.877         4.877           SQP≥gradLagrangian         1742         4.631         1.673           exactpenaltyViaSmoothingIgh≥savestats         6313         4.035         0.234           almbddmultiplier≥@(x)complementaryPowerViolation         12984         4.026         0.107           almbddmultiplier>complementaryPowerViolation         12984         3.919         1.171           tangentorthobasis         831         3.907         0.089           orthogonalize         831         3.187         1.111           SQP>KKT_residual         871         3.056         0.144           exactcenalttyViaSmoothinglotb≥maxabsLagrangemultipliers         6313         2.642         0.888           exactcenalttyViaSmoothinglse≥savestats         4097         2.580         0.152          factory>@()sprintf(Manifold of %dx%d matrices of rank %d.m.n.k)         121405         2.121         2.121           exactcenaltyViaSmoothinglst>complementaryPowerViolation         6393         2.060         0.657           applyStatsfun         361239         1.893         1.893          onstraint_fixedrank_equality_nonneg_lowrankcompletion>eobjgrad         323305         1.839         1.839           exactcenaltyViaSmoothingl	stoppingcriterion	360368	5.667	5.667	
SQP≥gradLagrangian         1742         4.831         1.673           exactopenaltyViaSmoothinglob≥savestats         6313         4.035         0.234           almbddmultiplier≥@(x)complementaryPowerViolation         12984         4.026         0.107           almbddmultiplier>complementaryPowerViolation         12984         3.919         1.171           tangentorthobasis         831         3.907         0.089           orthogonalize         831         3.187         1.111           SQP>KKT residual         871         3.056         0.144           exactpenaltyViaSmoothinglqbr=maxabsLagrangemultipliers         6313         2.642         0.888           exactpenaltyViaSmoothinglses-savestats         4097         2.580         0.152          factory>@(isprintf(Manifold of %dx%d matrices of rank %d.m.n.k)         121405         2.121         2.121           exactpenaltyViaSmoothinglght>complementaryPowerViolation         6393         2.060         0.657           applyStatsfun         381239         1.893         1.893          onstraint_fixedrank_equality_nonneg_lowrankcompletion>eobjgrad         4037         1.666         0.574           igaddense         831         1.339         0.151           exactpenaltyViaSmoothinglse>complementaryPowerViolation	num2str>handleNumericPrecision	173909	5.278	0.401	
SQP≥gradLagrangian         1742         4.831         1.673           exactopenaltyViaSmoothinglob≥savestats         6313         4.035         0.234           almbddmultiplier≥@(x)complementaryPowerViolation         12984         4.026         0.107           almbddmultiplier>complementaryPowerViolation         12984         3.919         1.171           tangentorthobasis         831         3.907         0.089           orthogonalize         831         3.187         1.111           SQP>KKT residual         871         3.056         0.144           exactpenaltyViaSmoothinglqbr=maxabsLagrangemultipliers         6313         2.642         0.888           exactpenaltyViaSmoothinglses-savestats         4097         2.580         0.152          factory>@(isprintf(Manifold of %dx%d matrices of rank %d.m.n.k)         121405         2.121         2.121           exactpenaltyViaSmoothinglght>complementaryPowerViolation         6393         2.060         0.657           applyStatsfun         381239         1.893         1.893          onstraint_fixedrank_equality_nonneg_lowrankcompletion>eobjgrad         4037         1.666         0.574           igaddense         831         1.339         0.151           exactpenaltyViaSmoothinglse>complementaryPowerViolation	num2str>convertUsingRecycledSprintf	173909	4.877	4.877	
almbddmultiplier≥@(x)complementaryPowerViolation(x.rho.lambdas) 12984 4.026 0.107  almbddmultiplier≥complementaryPowerViolation 12984 3.919 1.171  tangentorthobasis 831 3.907 0.089  orthogonalize 831 3.187 1.111  SQP>KKT residual 871 3.056 0.144  exactpenallyViaSmoothinglqh≥maxabsLagrangemultipliers 6313 2.642 0.888  exactpenallyViaSmoothinglqh≥maxabsLagrangemultipliers 6313 2.642 0.888  exactpenallyViaSmoothinglqb≥savestats 4097 2.580 0.152 factory≥@()sprintf(Manifold of %dx%d.matrices of rank %d.m.n.k) 121405 2.121 2.121  exactpenallyViaSmoothinglqb≥complementaryPowerViolation 6393 2.060 0.657  applyStatsfun 361239 1.893 1.893 onstraint_fixedrank_equality_nonneg_lowrankcompletion≥eobjgrad guadprog 831 1.679 0.151  exactpenallyViaSmoothinglse>maxabsLagrangemultipliers 4097 1.666 0.574  ioppdense 831 1.339 0.131  exactpenallyViaSmoothinglse>complementaryPowerViolation 4137 1.271 0.418  exactpenallyViaSmoothinglse>complementaryPowerViolation 4137 1.271 0.418 drank_equality_nonneg_lowrankcompletion≥eok(X.U)constrainthess 885600 0.908 0.908  canGetEuclideanGradient 328133 0.766 0.766  int2str 54623 0.704 0.704 drank_equality_nonneg_lowrankcompletion≥euclidean_objhessian 18936 0.700 0.279  almbddmultiplier>manifoldPowerViolation 12984 0.669 0.170		1742	4.631	1.673	
almbddmultiplier>complementaryPowerViolation         12984         3.919         1.171           tangentorthobasis         831         3.907         0.089           orthogonalize         831         3.187         1.111           SQP>KKT residual         871         3.056         0.144           exactpenaltyViaSmoothinglqh>maxabsLagrangemultipliers         6313         2.642         0.888           exactpenaltyViaSmoothinglqs>savestats         4097         2.580         0.152          factory>@()sprintf(Manifold of %dx%d matrices of rank %d'.m.n.k)         121405         2.121         2.121           exactpenaltyViaSmoothinglqs>complementaryPowerViolation         6393         2.060         0.657           exactpenaltyViaSmoothinglqs>complementaryPowerViolation         323305         1.893         1.893          onstraint_fixedrank_equality_nonneg_lowrankcompletion>eobjgrad         323305         1.839         1.839           quadprog         831         1.679         0.151           exactpenaltyViaSmoothinglse>maxabsLagrangemultipliers         4097         1.666         0.574           ipgpdense         831         1.339         0.131           exactpenaltyViaSmoothinglse>complementaryPowerViolation         4137         1.271         0.418           can	exactpenaltyViaSmoothinglqh>savestats	6313	4.035	0.234	
tangentorthobasis 831 3.907 0.089  orthogonalize 831 3.187 1.111  SQP>KKT_residual 871 3.056 0.144  exactpenalty\viaSmoothinglqh>maxabsLagrangemultipliers 6313 2.642 0.888  exactpenalty\viaSmoothinglge>savestats 4097 2.580 0.152 factory>@()sprintf("Manifold of %dx%d matrices of rank %d'.m.n.k) 121405 2.121 2.121  exactpenalty\viaSmoothinglqh>complementaryPower\violation 6393 2.060 0.657  applyStatsfun 361239 1.893 1.893 onstraint_fixedrank_equality_nonneg_lowrankcompletion>eobjgrad 323305 1.839 1.839 onstraint_fixedrank_equality_nonneg_lowrankcompletion>eobjgrad 323305 1.839 1.839  ippdense 831 1.679 0.151  exactpenalty\viaSmoothinglse>maxabsLagrangemultipliers 4097 1.666 0.574  ippgdense 831 1.339 0.131  exactpenalty\viaSmoothinglse>complementaryPower\violation 4137 1.271 0.418  exactpenalty\viaSmoothinglse>complementaryPower\violation 4137 1.271 0.418 drank_equality_nonneg_lowrankcompletion>@(X,U)constrainthess 885600 0.908 0.908  canGett_uclideanGradient 328133 0.766 0.766  int2str 54623 0.704 0.704 drank_equality_nonneg_lowrankcompletion>euclidean_objhessian almobdmultiplier>manifoldPower\violation 12984 0.669 0.170	almbddmultiplier>@(x)complementaryPowerViolation(x,rho,lambdas)	12984	4.026	0.107	
orthogonalize       831       3.187       1.111         SQP>KKT residual       871       3.056       0.144         exactpenaltyViaSmoothinglqh>maxabsLagrangemultipliers       6313       2.642       0.888         exactpenaltyViaSmoothinglse>savestats       4097       2.580       0.152        factory≥@()sprintf('Manifold of %dx%d matrices of rank %d'.m.n.k)       121405       2.121       2.121         exactpenaltyViaSmoothinglqh>complementaryPowerViolation       6393       2.060       0.657         applySlatsfun       361239       1.893       1.893        onstraint_fixedrank_equality_nonneg_lowrankcompletion>eobjgrad       323305       1.839       1.839         quadprog       831       1.679       0.151         exactpenaltyViaSmoothinglse>maxabsLagrangemultipliers       4097       1.666       0.574         ipqpdense       831       1.339       0.131         exactpenaltyViaSmoothinglse>complementaryPowerViolation       4137       1.271       0.418         exactpenaltyViaSmoothinglse>complementaryPowerViolation       4137       1.169       1.169        drank_equality_nonneg_lowrankcompletion>@(X.U)constrainthess       885600       0.908       0.908        drank_equality_nonneg_lowrankcompletion>euclidean_objhessian       19836	almbddmultiplier>complementaryPowerViolation	12984	3.919	1.171	
SQP≥KKT_residual         871         3.056         0.144           exactpenaltyViaSmoothinglqh>maxabsLagrangemultipliers         6313         2.642         0.888           exactpenaltyViaSmoothinglse≥savestals         4097         2.580         0.152          factory≥@()sprintf('Manifold of %dx%d matrices of rank %d'.m.n.k)         121405         2.121         2.121           exactpenaltyViaSmoothinglqh≥complementaryPowerViolation         6393         2.060         0.657           applyStatsfun         361239         1.893         1.893          onstraint_fixedrank_equality_nonneg_lowrankcompletion>eobjgrad         323305         1.839         1.839           quadprog         831         1.679         0.151           exactpenaltyViaSmoothinglse>maxabsLagrangemultipliers         4097         1.666         0.574           lpapdense         831         1.339         0.131           exactpenaltyViaSmoothinglse>complementaryPowerViolation         4137         1.271         0.418           exactpenaltyViaSmoothinglse>complementaryPowerViolation         4137         1.271         0.418           exactpenaltyViaSmoothinglse>complementaryPowerViolation         4137         1.271         0.418           exactpenaltyViaSmoothinglse>complementaryPowerViolation         337174         1.169	tangentorthobasis	831	3.907	0.089	
exactpenaltyViaSmoothinglqb>maxabsLagrangemultipliers         6313         2.642         0.888           exactpenaltyViaSmoothinglse>savestats         4097         2.580         0.152          factory>@()sprintf(Manifold of %dx%d matrices of rank %d'.m.n.k)         121405         2.121         2.121           exactpenaltyViaSmoothinglqb>complementaryPowerViolation         6393         2.060         0.657           applyStatsfun         361239         1.893         1.893          onstraint_fixedrank_equality_nonneg_lowrankcompletion>eobjgrad         323305         1.839         1.839           quadprog         831         1.679         0.151           exactpenaltyViaSmoothinglse>maxabsLagrangemultipliers         4097         1.666         0.574           lipgpdense         831         1.339         0.131           exactpenaltyViaSmoothinglse>complementaryPowerViolation         4137         1.271         0.418           canGetLinesearch         337174         1.169         1.169          drank_equality_nonneg_lowrankcompletion>@(X.U)constrainthess         885600         0.908         0.908           canGetEuclideanGradient         328133         0.766         0.766           int2str         54623         0.704         0.704          drank_equalit	<u>orthogonalize</u>	831	3.187	1.111	
exactpenaltyViaSmoothinglse≥savestats         4097         2.580         0.152          factory≥@()sprintf('Manifold of %dx%d matrices of rank %d',m,n,k)         121405         2.121         2.121           exactpenaltyViaSmoothinglqh>complementaryPowerViolation         6393         2.060         0.657           applyStatsfun         361239         1.893         1.893          onstraint_fixedrank_equality_nonneg_lowrankcompletion>eobjgrad         323305         1.839         1.839           quadprog         831         1.679         0.151         0.151           exactpenaltyViaSmoothinglse>maxabsLagrangemultipliers         4097         1.666         0.574           ipqpdense         831         1.339         0.131           exactpenaltyViaSmoothinglse>complementaryPowerViolation         4137         1.271         0.418           canGetLinesearch         337174         1.169         1.169          drank_equality_nonneg_lowrankcompletion>@(X,U)constrainthess         885600         0.908         0.908           canGetEuclideanGradient         328133         0.766         0.766         0.766           int2str         54623         0.704         0.704         0.704          drank_equality_nonneg_lowrankcompletion>euclidean_objhessian         19836         0	SQP>KKT_residual	871	3.056	0.144	
factory>@()sprintf(Manifold of %dx%d matrices of rank %d',m,n.k)       121405       2.121       2.121         exactpenaltyViaSmoothinglqh>complementaryPowerViolation       6393       2.060       0.657         applyStatsfun       361239       1.893       1.893         onstraint_fixedrank_equality_nonneg_lowrankcompletion>eobjgrad       323305       1.839       1.839         quadprog       831       1.679       0.151         exactpenaltyViaSmoothinglse>maxabsLagrangemultipliers       4097       1.666       0.574         ipqpdense       831       1.339       0.131         exactpenaltyViaSmoothinglse>complementaryPowerViolation       4137       1.271       0.418         canGetLinesearch       337174       1.169       1.169        drank_equality_nonneg_lowrankcompletion>@(X.U)constrainthess       885600       0.908       0.908         canGetEuclideanGradient       328133       0.766       0.766         int2str       54623       0.704       0.704        drank_equality_nonneg_lowrankcompletion>euclidean_objhessian       19836       0.700       0.279         almbddmultiplier>manifoldPowerViolation       12984       0.669       0.170	exactpenaltyViaSmoothinglqh>maxabsLagrangemultipliers	6313	2.642	0.888	
exactpenaltyViaSmoothinglqh>complementaryPowerViolation         6393         2.060         0.657           applyStatsfun         361239         1.893         1.893          onstraint_fixedrank_equality_nonneg_lowrankcompletion>eobjgrad         323305         1.839         1.839           guadprog         831         1.679         0.151           exactpenaltyViaSmoothinglse>maxabsLagrangemultipliers         4097         1.666         0.574           ipqpdense         831         1.339         0.131           exactpenaltyViaSmoothinglse>complementaryPowerViolation         4137         1.271         0.418           canGetLinesearch         337174         1.169         1.169          drank_equality_nonneg_lowrankcompletion>@(X,U)constrainthess         885600         0.908           canGetEuclideanGradient         328133         0.766         0.766           int2str         54623         0.704         0.704          drank_equality_nonneg_lowrankcompletion>euclidean_objhessian         19836         0.700         0.279           almbddmultiplier>manifoldPowerViolation         12984         0.669         0.170	exactpenaltyViaSmoothinglse>savestats	4097	2.580	0.152	
applyStatsfun       361239       1.893       1.893        onstraint_fixedrank_equality_nonneg_lowrankcompletion>eobjgrad       323305       1.839       1.839         quadprog       831       1.679       0.151         exactpenaltyViaSmoothinglse>maxabsLagrangemultipliers       4097       1.666       0.574         ipapdense       831       1.339       0.131         exactpenaltyViaSmoothinglse>complementaryPowerViolation       4137       1.271       0.418         canGetLinesearch       337174       1.169       1.169        drank_equality_nonneg_lowrankcompletion>@(X,U)constrainthess       885600       0.908       0.908         canGetEuclideanGradient       328133       0.766       0.766         int2str       54623       0.704       0.704        drank_equality_nonneg_lowrankcompletion>euclidean_objhessian       19836       0.700       0.279         almbddmultiplier>manifoldPowerViolation       12984       0.669       0.170	factory>@()sprintf('Manifold of %dx%d matrices of rank %d',m,n,k)	121405	2.121	2.121	
onstraint_fixedrank_equality_nonneg_lowrankcompletion>eobjgrad       323305       1.839       1.839         quadprog       831       1.679       0.151         exactpenaltyViaSmoothinglse>maxabsLagrangemultipliers       4097       1.666       0.574         ipqpdense       831       1.339       0.131         exactpenaltyViaSmoothinglse>complementaryPowerViolation       4137       1.271       0.418         canGetLinesearch       337174       1.169       1.169        drank_equality_nonneg_lowrankcompletion>@(X,U)constrainthess       885600       0.908       0.908         canGetEuclideanGradient       328133       0.766       0.766         int2str       54623       0.704       0.704        drank_equality_nonneg_lowrankcompletion>euclidean_objhessian       19836       0.700       0.279         almbddmultiplier>manifoldPowerViolation       12984       0.669       0.170	exactpenaltyViaSmoothinglqh>complementaryPowerViolation	6393	2.060	0.657	
quadprog         831         1.679         0.151           exactpenaltyViaSmoothinglse>maxabsLagrangemultipliers         4097         1.666         0.574           ipqpdense         831         1.339         0.131           exactpenaltyViaSmoothinglse>complementaryPowerViolation         4137         1.271         0.418           canGetLinesearch         337174         1.169         1.169          drank_equality_nonneg_lowrankcompletion>@(X,U)constrainthess         885600         0.908         0.908           canGetEuclideanGradient         328133         0.766         0.766           int2str         54623         0.704         0.704          drank_equality_nonneg_lowrankcompletion>euclidean_objhessian         19836         0.700         0.279           almbddmultiplier>manifoldPowerViolation         12984         0.669         0.170	<u>applyStatsfun</u>	361239	1.893	1.893	
exactpenaltyViaSmoothinglse>maxabsLagrangemultipliers         4097         1.666         0.574           ipqpdense         831         1.339         0.131           exactpenaltyViaSmoothinglse>complementaryPowerViolation         4137         1.271         0.418           canGetLinesearch         337174         1.169         1.169          drank_equality_nonneg_lowrankcompletion>@(X,U)constrainthess         885600         0.908         0.908           canGetEuclideanGradient         328133         0.766         0.766         0.766           int2str         54623         0.704         0.704         0.704          drank_equality_nonneg_lowrankcompletion>euclidean_objhessian         19836         0.700         0.279           almbddmultiplier>manifoldPowerViolation         12984         0.669         0.170	onstraint_fixedrank_equality_nonneg_lowrankcompletion>eobjgrad	323305	1.839	1.839	
ipqpdense         831         1.339         0.131           exactpenaltyViaSmoothinglse>complementaryPowerViolation         4137         1.271         0.418           canGetLinesearch         337174         1.169         1.169          drank_equality_nonneg_lowrankcompletion>@(X,U)constrainthess         885600         0.908         0.908           canGetEuclideanGradient         328133         0.766         0.766           int2str         54623         0.704         0.704          drank_equality_nonneg_lowrankcompletion>euclidean_objhessian         19836         0.700         0.279           almbddmultiplier>manifoldPowerViolation         12984         0.669         0.170	quadprog	831	1.679	0.151	
exactpenaltyViaSmoothinglse>complementaryPowerViolation         4137         1.271         0.418           canGetLinesearch         337174         1.169         1.169          drank_equality_nonneg_lowrankcompletion>@(X,U)constrainthess         885600         0.908         0.908           canGetEuclideanGradient         328133         0.766         0.766           int2str         54623         0.704         0.704          drank_equality_nonneg_lowrankcompletion>euclidean_objhessian         19836         0.700         0.279           almbddmultiplier>manifoldPowerViolation         12984         0.669         0.170	exactpenaltyViaSmoothinglse>maxabsLagrangemultipliers	4097	1.666	0.574	
canGetLinesearch       337174       1.169       1.169        drank_equality_nonneg_lowrankcompletion>@(X,U)constrainthess       885600       0.908       0.908         canGetEuclideanGradient       328133       0.766       0.766         int2str       54623       0.704       0.704        drank_equality_nonneg_lowrankcompletion>euclidean_objhessian       19836       0.700       0.279         almbddmultiplier>manifoldPowerViolation       12984       0.669       0.170	<u>ipqpdense</u>	831	1.339	0.131	
drank_equality_nonneg_lowrankcompletion>@(X,U)constrainthess         885600         0.908         0.908           canGetEuclideanGradient         328133         0.766         0.766           int2str         54623         0.704         0.704          drank_equality_nonneg_lowrankcompletion>euclidean_objhessian         19836         0.700         0.279           almbddmultiplier>manifoldPowerViolation         12984         0.669         0.170	exactpenaltyViaSmoothinglse>complementaryPowerViolation	4137	1.271	0.418	
canGetEuclideanGradient       328133       0.766       0.766         int2str       54623       0.704       0.704        drank_equality_nonneg_lowrankcompletion>euclidean_objhessian       19836       0.700       0.279         almbddmultiplier>manifoldPowerViolation       12984       0.669       0.170	canGetLinesearch	337174	1.169	1.169	
int2str         54623         0.704         0.704          drank_equality_nonneg_lowrankcompletion>euclidean_objhessian         19836         0.700         0.279           almbddmultiplier>manifoldPowerViolation         12984         0.669         0.170	drank_equality_nonneg_lowrankcompletion>@(X,U)constrainthess	885600	0.908	0.908	
drank_equality_nonneg_lowrankcompletion>euclidean_objhessian     19836     0.700     0.279       almbddmultiplier>manifoldPowerViolation     12984     0.669     0.170	<u>canGetEuclideanGradient</u>	328133	0.766	0.766	
almbddmultiplier>manifoldPowerViolation 12984 0.669 0.170	int2str	54623	0.704	0.704	
	drank_equality_nonneg_lowrankcompletion>euclidean_objhessian	19836	0.700	0.279	
fixedrankembeddedfactory>randomvec 19836 0.630 0.493	almbddmultiplier>manifoldPowerViolation	12984	0.669	0.170	
	fixedrankembeddedfactory>randomvec	19836	0.630	0.493	

831	0.489	0.185	
337174	0.416	0.416	
831	0.380	0.380	
871	0.373	0.119	
24785	0.343	0.343	
6393	0.331	0.086	
871	0.295	0.093	
1662	0.229	0.017	
831	0.212	0.104	
4137	0.211	0.056	
23394	0.144	0.144	
831	0.138	0.138	
13296	0.123	0.047	
23194	0.121	0.121	
19836	0.089	0.089	
831	0.087	0.087	
40	0.085	0.026	
13296	0.077	0.077	
2493	0.075	0.075	
12944	0.073	0.073	
4155	0.065	0.065	
240	0.065	0.024	
40	0.058	0.010	
4155	0.055	0.022	
871	0.054	0.047	
23194	0.054	0.054	
871	0.049	0.014	
40	0.047	0.018	
480	0.041	0.010	
831	0.039	0.039	
40	0.036	0.017	
831	0.036	0.036	
40		0.028	
	0.022	0.022	
80	0.019	0.019	
831	0.019	10.015	
831	0.019	0.015	
12467	0.018	0.018	
12467 831	0.018 0.015	0.018 0.015	
12467	0.018	0.018	
	337174 831 871 24785 6393 871 1662 831 4137 23394 831 13296 23194 19836 831 40 13296 2493 12944 4155 240 40 4155 871 23194 871 40 480 831 40	337174       0.416         831       0.380         871       0.373         24785       0.343         6393       0.331         871       0.295         1662       0.229         831       0.212         4137       0.211         23394       0.144         831       0.138         13296       0.123         23194       0.121         19836       0.089         831       0.087         40       0.085         13296       0.077         2493       0.075         12944       0.073         4155       0.065         240       0.058         4155       0.055         871       0.054         23194       0.054         871       0.049         40       0.047         480       0.041         831       0.036         831       0.036         831       0.036         831       0.036         831       0.033         883       0.024         4828       0.023	337174         0.416         0.416           831         0.380         0.380           871         0.373         0.119           24785         0.343         0.343           6393         0.331         0.086           871         0.295         0.093           1662         0.229         0.017           831         0.212         0.104           4137         0.211         0.056           23394         0.144         0.144           831         0.138         0.138           13296         0.123         0.047           23194         0.121         0.121           19836         0.089         0.089           831         0.087         0.087           40         0.085         0.026           13296         0.077         0.077           2493         0.075         0.075           12944         0.073         0.073           4155         0.065         0.065           240         0.065         0.024           40         0.058         0.010           4155         0.055         0.022           871         0.0

RandStream.RandStream>getMethodNames	1	0.010	0.010
cell.unique>celluniqueR2012a	80	0.010	0.010
close	1	0.009	0.001
SQP>musposiPowerViolation	871	0.008	0.008
nthroot	280	0.008	0.008
close>safegetchildren	1	0.008	0.003
ipqpdense>i_unwrapInternalOptions	831	0.007	0.007
<u>randsample</u>	40	0.007	0.005
ismember	40	0.005	0.001
allchild	1	0.005	0.004
optimlib/private/classifyBoundsOnVars>equalFloat	831	0.004	0.004
ismember>ismemberR2012a	40	0.004	0.002
canGetHessian	831	0.004	0.004
presolve>freeLinearColumnSingletons	831	0.004	0.004
presolve>unconstrVars	831	0.004	0.004
optimset>checkfield	40	0.003	0.002
presolve>infiniteRHS	831	0.003	0.003
fixedrankembeddedfactory>@()(m+n-k)*k	1662	0.003	0.003
presolve>fixVarsEqBnds	831	0.003	0.003
functionNameClashCheck	831	0.003	0.003
partialMatchString	80	0.002	0.002
presolve>singletonIneqs	831	0.002	0.002
ismember>ismemberBuiltinTypes	40	0.002	0.002
presolve>singletonEqs	831	0.002	0.002
presolve>dbltnEqualities	831	0.002	0.002
optimfun/private/uselargeoptimstruct	40	0.002	0.002
RandStream.RandStream>RandStream.algName	40	0.002	0.002
RandStream.RandStream>RandStream.delete	40	0.002	0.002
RandStream.RandStream>getargs	40	0.001	0.001
RandStream.randperm	40	0.001	0.001
optimset>displayType	40	0.001	0.001
dlmwrite>setdlm	40	0.001	0.001
cellstr	40	0.001	0.001
getSettingsRoot	10	0.001	0.001
allchild>getchildren	1	0.001	0.001
mpower	6	0.001	0.001
optimset>onDeprecationPathOptionCheck	40	0.001	0.001
optimfun/private/optimoptiongetfields	40	0.000	0.000
close>getEmptyHandleList	1	0.000	0.000
allchild>@()set(rootobj,'ShowHiddenHandles',Temp)	1	0.000	0.000
uitools/private/allchildRootHelper	1	0.000	0.000
close>checkfigs	1	0.000	0.000
close>request close	1	0.000	0.000
webwindowmanager>webwindowmanager.delete	1	0.000	0.000

<sup>\*</sup>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.