lyapunov_spectrum_qr>variational_eqs_ode (Calls: 61018, Time: 33.050 s)

Generated 14-Nov-2025 18:31:42 using performance time.
Nested function in file /Users/richner.thomas/Desktop/local_code/FractionalResevoir/SRNN_example/lyapunov_spectrum_qr.m
Copy to new window for comparing multiple runs

Parents (calling functions)

Function Name	Function Type	Calls
funfun/private/odearguments	Function	1000
ode45	Function	60018

Lines that take the most time

Line Number	Code	Calls	Total Time (s)	% Time	Time Plot
157	dPsi_matrix_dt = J_matrix * Psi_matrix;	61018	16.744	50.7%	
151	J_matrix = jacobian_func_handle(tt, X_fid_at_tt, param…	61018	9.995	30.2%	
147	X_fid_at_tt(state_idx_loop) = fiducial_interpolants{st…	9152700	6.105	18.5%	
148	end	9152700	0.105	0.3%	
154	Psi_matrix = reshape(current_Psi_vec, [N_states_sys, N…	61018	0.032	0.1%	
All other lines			0.068	0.2%	
Totals			33.050	100%	

Children (called functions)

Function Name	Function Type	Calls	Total Time (s)	% Time	Time Plot
full_SRNN_caller>SRNN_Jacobian_wrapper	Subfunction	61018	9.923	30.0%	
Self time (built-ins, overhead, etc.)			23.127	70.0%	
Totals			33.050	100%	

Code Analyzer results

No Code Analyzer messages.

Coverage results

Total lines in function	24
Non-code lines (comments, blank lines)	15
Code lines (lines that can run)	9
Code lines that did run	9
Code lines that did not run	0
Coverage (did run/can run)	100.00 %

Function listing

Time	Calls	Line	
		138	function dPsi_vec_dt = variational_eqs_ode(tt, current_Psi_vec)
		139	% This nested function defines the variational ODE system:
		140	% d(Psi)/dt = J(X_fid(t)) * Psi
		141	% It has access to variables from the parent function's workspace,
		142	% such as fiducial_interpolants, N_states_sys, jacobian_func_handle, and params.
		143	
		144	% Interpolate fiducial state X_fid at current time tt
0.008	61018	145	X_fid_at_tt = zeros(N_states_sys, 1);
0.001	61018	146	for state_idx_loop = 1:N_states_sys % Renamed loop variable to avoid conflict if N_states was used
6.105	9152700	147	X_fid_at_tt(state_idx_loop) = fiducial_interpolants{state_idx_loop}(tt);
0.105	9152700	148	end
		149	
		150	% Calculate Jacobian at X_fid(tt) using the provided function handle
9.995	61018	151	J_matrix = jacobian_func_handle(tt, X_fid_at_tt, params);

		152	
		153	% Reshape Psi_vec (input from ODE solver) to matrix form
0.032	61018	154	Psi_matrix = reshape(current_Psi_vec, [N_states_sys, N_states_sys]);
		155	
		156	% Calculate d(Psi_matrix)/dt = J * Psi
16.744	61018	157	dPsi_matrix_dt = J_matrix * Psi_matrix;
		158	
		159	% Reshape back to vector for ODE solver output
0.006	61018	160	dPsi_vec_dt = reshape(dPsi_matrix_dt, [], 1);

Local functions in this file are not included in this listing.