Introduction to Recursive Filtering and Estimation

Results Programming Exercise 1 (Kalman Filtering)

Nummer	total %	Mistakes / Improvements
183424		
00-000-000	70	incorrect modeling of process noise (no process noise in this exercise) (-15%); incorrect measurement update (gain set to 0 OR gain set to previous values OR use of previous measurement) (-15%);
01-910-140	95	prior update of covariance matrix without second order term (-5%);
02-924-132		
03-908-035	70	incorrect modeling of process noise (no process noise in this exercise) (-15%); incorrect measurement update (gain set to 0 OR gain set to previous values OR use of previous measurement) (-15%);
03-908-571		
03-909-892	100	
03-918-604		
04-910-501	75	incorrect initialization significantly decreases performance (-10%); incorrect modeling of process noise (no process noise in this exercise) (-15%);
04-915-559		
04-921-334	100	variance initialization incorrect (minor effect) (-0%); measurement update should be improved (adapt dimensions of H, z, R), but result ok (-0%);
05-057-542	100	
05-906-755	100	measurement update should be improved (adapt dimensions of H, z, R), but result ok (-0%);
05-906-896	95	Saturation on wheel radii decreases performance (inconsistency with error covariance) (-5%)
05-908-868	100	
05-909-239	85	incorrect measurement update (gain set to 0 OR gain set to previous values OR use of previous measurement) (-15%);
05-910-047	70	incorrect modeling of process noise (no process noise in this exercise) (-15%); incorrect measurement update (gain set to 0 OR gain set to previous values OR use of previous measurement) (-15%);
05-910-310	85	averaging of 2 inputs (why?) (-0%); incorrect modeling of process noise (no process noise in this exercise) (-15%);
05-910-559	100	Initialization of variances incorrect (minor effect) (-0%)
05-910-856	85	incorrect modeling of process noise (no process noise in this exercise) (-15%); measurement update should be improved (adapt dimensions of H, z, R), but result ok (-0%);
05-912-522	70	wheel radii not modeled as estimator states (-15%); incorrect modeling of process noise (no process noise in this exercise) (-15%); measurement update should be improved (adapt dimensions of H, z, R), but result ok (-0%);
05-913-587	70	incorrect modeling of process noise (no process noise in this exercise) (-15%); incorrect measurement update (gain set to 0 OR gain set to previous values OR use of previous measurement) (-15%);
05-914-528	100	measurement update should be improved (adapt dimensions of H, z, R), but result ok (-0%);
05-914-734	100	wheel radii variance not initialized correctly (minor effect) (-0%); process noise (with explanation, minor) (-0%); measurement update should be improved (adapt dimensions of H, z, R), but result ok (-0%);
05-915-152	85	averaging of 2 inputs (why?) (-0%); incorrect modeling of process noise (no process noise in this exercise) (-15%);
05-915-350	100	wheel radii variance not initialized correctly (minor effect) (-0%); process noise (with explanation, minor) (-0%); measurement update should be improved (adapt dimensions of H, z, R), but result ok (-0%);
05-915-566	85	incorrect measurement update (gain set to 0 OR gain set to previous values OR use of previous measurement) (-15%);
05-915-954	95	Saturation on wheel radii decreases performance (inconsistency with error covariance) (-5%)
05-919-352		
05-919-766	85	incorrect modeling of process noise (no process noise in this exercise) (-15%); measurement update should be improved (adapt dimensions of H, z, R), but result ok (-0%);
05-919-816	70	wheel radii not modeled as estimator states (-15%); incorrect modeling of process noise (no process noise in this exercise) (-15%); measurement update should be improved (adapt dimensions of H, z, R), but result ok (-0%);
05-919-840	85	incorrect modeling of process noise (no process noise in this exercise) (-15%); measurement update should be improved (adapt dimensions of H, z, R), but result ok (-0%);
05-925-680	85	incorrect modeling of process noise (no process noise in this exercise) (-15%); measurement update should be improved (adapt dimensions of H, z, R), but result ok (-0%);
05-929-849		
06-906-440	95	prior update of covariance matrix without second order term (-5%);
06-906-556		
06-907-380	100	wheel radii not initialized to mean (minor effect) (-0%)
06-907-943	100	
06-907-976	100	
06-908-230	95	prior update of covariance matrix without second order term (-5%);
06-908-354	85	averaging of 2 inputs (why?) (-0%); incorrect modeling of process noise (no process noise in this exercise) (-15%);
06-908-859	100	
06-909-501	100	measurement update should be improved (adapt dimensions of H, z, R), but result ok (-0%);
06-909-527	100	
06-909-915	100	wheel radii not initialized to mean (minor effect) (-0%)

06-909-956	85	Initialization of variances incorrect (minor effect) (-0%); incorrect modeling of process noise (no process noise in this exercise) (-15%); measurement update should be improved (adapt dimensions of H, z, R), but result ok (-0%);
06-910-178	100	
06-911-093	85	incorrect measurement update (gain set to 0 OR gain set to previous values OR use of previous measurement) (-15%);
06-911-440	100	
06-912-273	70	wheel radii not modeled as estimator states (-15%); incorrect modeling of process noise (no process noise in this exercise) (-15%); measurement update should be improved (adapt dimensions of H, z, R), but result ok (-0%);
06-913-198	100	Variance initialization not correct (minor effect) (-0%), KF Step 2 before Step 1 (-0%)
06-914-659		
06-914-998	100	
06-915-029	100	measurement update should be improved (adapt dimensions of H, z, R), but result ok (-0%);
06-915-490	100	Variance initialization not correct (minor effect) (-0%), KF Step 2 before Step 1 (-0%)
06-916-001	100	
06-916-936	95	prior update of covariance matrix without second order term (-5%);
06-916-985	100	measurement update should be improved (adapt dimensions of H, z, R), but result ok (-0%);
06-917-397	100	measurement update should be improved (adapt dimensions of H, z, R), but result ok (-0%); process noise set to state variance (minor effect) (-0%)
06-918-254	100	
06-919-765	100	wheel radii not initialized to mean (minor effect) (-0%)
06-920-599	0	Wrong submission.
06-920-755	100	measurement update should be improved (adapt dimensions of H, z, R), but result ok (-0%);
06-926-000	100	Variance initialization not correct (minor effect) (-0%), KF Step 2 before Step 1 (-0%)
08-906-307	100	
08-932-626	100	
08-938-714		
09-900-069		
09-901-521	100	
09-902-453		
09-907-403	60	wheel radii not modeled as estimator states (-15%); incorrect initialization significantly decreases performance (-10%); incorrect measurement update (gain set to 0 OR gain set to previous values OR use of previous measurement) (-15%);
09-907-411	60	wheel radii not modeled as estimator states (-15%); incorrect initialization significantly decreases performance (-10%); incorrect measurement update (gain set to 0 OR gain set to previous values OR use of previous measurement) (-15%);
09-907-502	70	wheel radii not modeled as estimator states (-15%); incorrect measurement update (gain set to 0 OR gain set to previous values OR use of previous measurement) (-15%);
09-908-302	60	wheel radii not modeled as estimator states (-15%); incorrect initialization significantly decreases performance (-10%); incorrect measurement update (gain set to 0 OR gain set to previous values OR use of previous measurement) (-15%);
09-909-052	55	wheel radii not modeled as estimator states (-15%); incorrect modeling of process noise (no process noise in this exercise) (-15%); incorrect measurement update (gain set to 0 OR gain set to previous values OR use of previous measurement) (-15%);
09-924-739	70	wheel radii not modeled as estimator states (-15%); incorrect modeling of process noise (no process noise in this exercise) (-15%);
09-931-676	100	Initialization of variances incorrect (minor effect) (-0%)
09-935-123	55	wheel radii not modeled as estimator states (-15%); incorrect modeling of process noise (no process noise in this exercise) (-15%); incorrect measurement update (gain set to 0 OR gain set to previous values OR use of previous measurement) (-15%);
09-935-156	70	wheel radii not modeled as estimator states (-15%); incorrect modeling of process noise (no process noise in this exercise) (-15%);
09-935-164		
09-935-362	55	wheel radii not modeled as estimator states (-15%); incorrect modeling of process noise (no process noise in this exercise) (-15%); incorrect measurement update (gain set to 0 OR gain set to previous values OR use of previous measurement) (-15%);
09-935-958	55	wheel radii not modeled as estimator states (-15%); incorrect modeling of process noise (no process noise in this exercise) (-15%); incorrect measurement update (gain set to 0 OR gain set to previous values OR use of previous measurement) (-15%);
09-936-451		
80-911-258		
count	69	
mean	86.67	
std	18.34	

Notes:

If you have questions regarding the grading of your programming exercise, please make an appointment with Sebastian (strimpe@ethz.ch).
The results will be combined at the end of the class to a final grade.