Interpretations

(say mean)

✓ In EKF we use only one point to approximate a new value, But in case of UKF, we use 2(number of variables in state vector) +1 number of sigma points.

✓ In case of UKF we choose bunch of points including mean & covariance, & we approximate around multiple number of points, hence approximation is better than EKF.

✓ These sigma points represent the whole distribution.

✓ Each sigma points also has weights, Sum of all weights equal to 1.

Continental⅃

✓ In EKF we approximately linearize the non-linear functions using Jacobian matrix, it takes more time to converge to the correct solution, hence it is unstable. Whereas UKF converges quickly & it is stable, and Robust. because UKF can handle both linear & non-linear functions & produce results more accurately.

These interpretations are written based on my 7th semester project i.e Sensor fusion-based object tracking using Kalman filter.

Fuses Radar & Lidar using 3 algm's:
1) KF 2) EKF & 3) UKF.

Memory Consumption

	ekf	ukf
CPU %	0.7 - 2.0	0.9 - 2.6
memory %	0.1 - 0.2	0.1 - 0.2

Typically UKF Consumes more computational power & time compared to EKF.