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## Does anyone have a 6-DOF IMU Kalman Filter?

I am looking for a complete solution for 6-DOF IMU Kalman Filtering (acceleration x-y-z, gyro x-y-z).

I am interested in all example, initial parameters, validation.

Topics

Kalman Filtering

Extended Kalman Filters

Nov 9, 2012

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All Answers (2)



**John Arthur Mitsuru Petersen** · Autonomous Solutions Inc.

If you're trying to estimate all 6 parameters as states, I think you'll find you need more than the IMU because there is no way to estimate the biases of these sensors with just their measurements. You need some other measurements to differentiate the biases from the actual sensing.

Sep 12, 2014 · [Recommend](#)

1 Recommendation



**Mojtaba Karimi** · Technische Universität München

Hi,

i have it. :) but i suggest the Quaternion based sensor fusion for IMU. :)

i attach 3 file that consist of:

1-DCM : for learn about how can u use direction cosine matrix for get orientation

2-Madgwick filter report

3-madgwick filter source code

4-kalman filter source code

for kalman filter, you just need create 3 independent children from proposed class inc++.

i used this class in ARM micro controller to get roll,pitch and yaw estimation. you just need accelerometer and gyroscope data. just remember that gyro data should be in deg/s. :)

[DCMDraft2.pdf](#)

[madgwick\\_internal\\_report.pdf](#)

[MARG.ino](#)

[Kalman.ino](#)

[MoPa\\_IMU.ino](#)

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### Similar Questions



**How can I calculate displacement from accelerometer data?**

*Dear all, I'm currently trying to use a accelerometer + gyroscope module (specifically MPU6050) with Arduino in order to track some specific kind...*

10 answers added



**How can we measure the direction of movement using an IMU ?**

*Suppose two IMU's (Inertial Measurement Unit consists of a 3-axis accelerometer, 3-axis gyroscope and a 3-axis compass) are attached to the...*

8 answers added



**How to find Q and R in Kalman Filter?**

*For the purpose of state estimation of induction motor how to find noise covariance matrix Q and measurement noise covariance matrix R?*

5 answers added



**Using a Kalman filter to filter noise out of accelerometer data?**

*I needs to filter the noise out of some accelerometer data (X,Y,Z) that was collected from a wheelchair driven around by a small child.*

10 answers added



**Does anyone have a simple example of Extended Kalman Filter to estimate parameters?**

*I'm trying to use the Extended Kalman Filter to estimate parameters of a linearized model of a vessel. But I really can't find a simple way or an...*

15 answers added



**What is the best way to measure position with an accelerometer and gyroscope?**

*I am using a MPU6050 and I have measurement position in 3-axis with them. But, how is the best way to use this sensor for position?*

5 answers added



**How do I determine the state transition matrix in kalman filter where I'm using 4-5 control parameters?**

*in my project i'm using a kalman filter to predict the next position of a tennis ball using kalman filter. the control parameters applicable on a...*

5 answers added



**How can I find process noise and measurement noise in a Kalman filter if I have a set of RSSI readings?**

*I have a set of RSSI readings. To filter the readings I use a Kalman filter. I wanted to know how to find noise values, process, measurement noise...*

10 answers added

**How can I avoid data drifting when integrating acceleration signal?**

*Based on some acceleration data and/or velocity data, I would like to integrate the signals to get velocity and/or position using Matlab....*

*6 answers added*

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Answers 2

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