Raees Ahmad

Computational Physicist / Navigation Algorithm Designer

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⬈ Personal Portfolio   in @raeesahmad052

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🪪 Profile

A highly motivated Computational Physicist with interest in Inertial & Integrated Navigation Algorithm Design & Development, Kalman Filtering & Nonlinear State Estimation, Fault Detection & Isolation and Navigation System Testing & Performance Analysis. Passionate and committed to continuous personal development, embracing challenges, and contributing innovative solutions to advance organizational goals and Navigation Technologies.

🎓 Education

Master of Philosophy in Physics
PIEAS, Islamabad ⬀

12/2011 – 11/2013
Islamabad, Pakistan

CGPA: 3.96/4.0 (99.0%), Cum Laude

Thesis title: Attitude and Heading Refrence System (AHRS) aided by magnetometer

Bachelor of Study in Physics
University of Gujrat ⬀

09/2007 – 12/2011
Gujrat, Pakistan

CGPA: 3.62/4.0 (78.67 %)

FSc. Pre-Engineering
Government Science College, Gujrat

2005 – 2007
Gujrat, Pakistan

Division: 1st

Matric (Science)
Government High School Hajiwala Gujrat

2003 – 2005
Gujrat, Pakistan

Division: 1st

💼 Professional Experience

Navigation Algorithm Designer / Researcher
A Public Sector R&D Organization

11/2013 – present
Islamabad, Pakistan

Freelance MATLAB
Fiverr International Ltd.

Online

📚 Courses

Applied Kalman Filtering (Specialization)
12/2024

▪ *University of Colorado System through Coursera* ⬈

87 Classroom Hours (Non-Credit Specialization with 4 Courses)
- Course 01: Kalman Filter Boot Camp (and State Estimation)
- Course 02: Linear Kalman Filter Deep Dive (and Target Tracking)
- Course 03: Nonlinear Kalman Filters (and Parameters Estimation)
- Course 04: Particle Filters (and Navigation)

Fundamentals of Flight Mechanics (Specialization)
09/2024

▪ *ISAE-SUPAERO through Coursera* ⬈

25 Classroom Hours (Non-Credit Specialization with 4 Courses)
- Course 01: Flight Mechanics - The Basis
- Course 02: Flight Mechanics – Anemobarometry
- Course 03: Flight Mechanics - Lift and Trajectory
- Course 04: Flight Mechanics - Propulsive Balance & Energy

MATLAB Programming for Engineers and Scientists (Specialization)
09/2024

▪ *Vanderbilt University through Coursera* ⬈

113 Classroom Hours (Non-Credit Specialization with 3 Courses)
- Course 01: Introduction to Programming with MATLAB
- Course 02: Mastering Programming with MATLAB
- Course 03: Introduction to Data, Signal and Image Analysis

Introduction to Artificial Intelligence (AI)
11/2021

IBM course through Coursera ⬈

13 Classroom Hours (Non-Credit)

AI Enabling with Predictive Analytics Inference Workshop for Industry Applications
10/2025

5 Days Course by AITech NCP

MATLAB Fundamentals
10/2025

MathWorks Training Services ⬈
- MATLAB Onramp
- SIMULINK Onramp

📁 Projects

Attitude and Heading Reference System (AHRS) aided by magnetometers

Design and development of AHRS using 9-DOF MPU-9250 IMU with optimal gains in C/C++

Oscilating/Moving base transfer alignment scheme for Strapdown Navigation Systems

Developed and tested oscilated/moving base transfer alignment scheme over real time data.

INS/GNSS integrated Algorithm using Linearized and Extended Kalman Filters

Designed & developed a loosely coupled INS/GNSS integration algorith with 15-states EKF

GNSS Outliers Rejection Strategy for relaiable Integrated Navigation

Designed & developed GNSS outliers rejection scheme based on comparison of differential changes of INS/GNSS and state covariances

3rd Order Vertical Channel damping loop algorithm for integration of INS/ADS/RA.

Developed a vertical channel damping loop for INS integration with ADS to provide smooth and reliable altitude.

🎖 Awards

Gold Medal *Pakistan Institute of Enginering & Applied Sciences* ⬈ *For securing 1st Postion in batch of M.Phil Physics (2011-2013)*	2013 Islamabad Pakistan
Certificate of Apperciation *Pakistan Institute of Enginering & Applied Sciences* ⬈ *For outstanding performance in Thesis Project*	2013 Islamabad Pakistan
Merit Scholarship *NESCOM Scholarship for 2 years M.Phil Physics at PIEAS*	2011 Islamabad Pakistan

🧠 Skills

Softwares (MATLAB / SIMULINK, Mathematica, Lab Windows/CVI, LabView, MS Office)
Programming Languages (MATLAB, C/C++ (Microsoft Visual Studio),Python,Latex)

🌐 Languages

English, Urdu, Punjabi

Interests

- Sports: Cricket (Amateur), Badminton (Amateur), Table Tennis (Beginner)
- E-Gaming: IGI, Need4Speed

Reference

Dr. Shakeel Ur Rehman, *Professor,* Pakistan Institute of Engineering and Applied Sciences (PIEAS), Islamabad. shakeel@pieas.edu.pk

Dr. Aman Ur Rehman, *Professor,* Pakistan Institute of Engineering and Applied Sciences (PIEAS), Islamabad. amansadiq@gmail.com

Dr. Shahid Baig, *Senior Researcher,* Center of Excellence in Science and Technology (CESAT), Islamabad. sbaig72@yahoo.com