



Handbook of Position Location: Theory, Practice and Advances (IEEE Series on Digital & Mobile Communication)

By Reza Zekavat, R. Michael Buehrer

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Radio systems capable of localization have emerging applications in homeland security, law enforcement, emergency response, defense command and control, multi-robot coordination and vehicle-to-vehicle and vehicle-to-pedestrian collision avoidance. In fact, high resolution localization is vital for many applications, including: traffic alert, emergency services, e.g., indoor localization for firefighters, and battlefield command and control. These systems promise to dramatically reduce society's vulnerabilities to catastrophic events and improve its quality of life.

While work this important area is progressing, limited resources are available to support graduate students and researchers in this important area. Specifically, a limited number of books has been published in this area covering selected subjects. This comprehensive handbook offers gaps of available localization books presenting in-depth coverage from fundamentals of coordinates to advanced application examples.

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Editorial Review

From the Back Cover

The most comprehensive reference on wireless localization technology, featuring theory, current practice, and application examples

This authoritative handbook reviews both classic and emerging position location techniques, presenting unique, in-depth coverage from fundamentals of coordinates to advanced application examples. Featuring contributions from dozens of researchers from around the world, it provides the breadth of knowledge needed for readers who need to get up to speed in the fundamentals of wireless localization or who are involved in its emerging applications in such key areas as homeland security, law enforcement, emergency response, defense command and control, and multi-robot coordination.

This invaluable handbook is comprised of seven parts:

- Part I reviews the basic techniques and research topics in position localization
- Part II details TOA and DOA localization methods, introducing important measures that compare different estimation techniques
- Part III studies the fundamentals of received signal strength–based positioning methods and their potential for indoor localization
- Part IV examines non-line-of-sight identification, mitigation, and localization methods, highlighting many novel techniques
- Part V reviews mobility and tracking using Kalman Filtering techniques, including their application in indoor localization and GNSS systems
- Part VI covers several topics in the area of network-based or cooperative localization, introducing techniques such as infrastructure-free local and wireless local positioning systems
- Part VII includes several novel applications of position location systems, offering many techniques and methods including GNSS and RFID-based localization systems and wireless local positioning systems

Many chapters feature useful MATLAB examples and their solutions; the examples have been designed to help readers learn fundamental algorithms for positioning and to begin their research more quickly. All MATLAB code is available online for download at: ftp://ftp.wiley.com/public/sci_tech_med/matlab_codes

Handbook of Position Location allows any working engineer or graduate student to quickly come up to speed in these systems. It also helps university professors teach the fundamentals of wireless localization.

About the Author

Syed A. (Reza) Zekavat, PhD, is Associate Professor and the founder of the wireless positioning lab at Michigan Tech. Prof. Zekavat is the founder of VIEWComm. Co., a position location company. He is active on the technical program committees for several IEEE international conferences, serving as a committee chair or member, and he is currently with the IET Wireless Sensor Systems editorial board. His research has been supported by federal agencies and industries including the NSF, ARL, and National Instruments.

R. Michael Buehrer, PhD, is an Associate Professor in the Bradley Department of Electrical and Computer Engineering at Virginia Tech. His research at Virginia Tech has been sponsored by several federal agencies including DARPA, ONR, and NSF, as well as by many companies, including Qualcomm, Motorola, and several others.

Users Review

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Darren Meekins:

The e-book with title Handbook of Position Location: Theory, Practice and Advances (IEEE Series on Digital & Mobile Communication) has lot of information that you can understand it. You can get a lot of advantage after read this book. This kind of book exist new understanding the information that exist in this e-book represented the condition of the world at this point. That is important to you to find out how the improvement of the world. This specific book will bring you in new era of the the positive effect. You can read the e-book on your smart phone, so you can read that anywhere you want.

Jessica Garcia:

A lot of people always spent their very own free time to vacation or go to the outside with them household or their friend. Were you aware? Many a lot of people spent these people free time just watching TV, as well as playing video games all day long. If you would like try to find a new activity this is look different you can read a book. It is really fun for you personally. If you enjoy the book which you read you can spent the whole day to reading a reserve. The book Handbook of Position Location: Theory, Practice and Advances (IEEE Series on Digital & Mobile Communication) it is very good to read. There are a lot of those who recommended this book. These were enjoying reading this book. In case you did not have enough space to develop this book you can buy often the e-book. You can more easily to read this book from a smart phone. The price is not too expensive but this book possesses high quality.

Thomas Bedwell:

Reading can called thoughts hangout, why? Because if you are reading a book mainly book entitled Handbook of Position Location: Theory, Practice and Advances (IEEE Series on Digital & Mobile Communication) your brain will drift away trough every dimension, wandering in each and every aspect that maybe mysterious for but surely will end up your mind friends. Imaging each and every word written in a book then become one web form conclusion and explanation which maybe you never get prior to. The Handbook of Position Location: Theory, Practice and Advances (IEEE Series on Digital & Mobile Communication) giving you another experience more than blown away the mind but also giving you useful information for your better life in this era. So now let us teach you the relaxing pattern here is your body and mind is going to be pleased when you are finished reading it, like winning a sport. Do you want to try this extraordinary spending spare time activity?

Andre Smith:

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