

## SolarInvert Energy Solutions

# Three-dimensional communication extended base station



## Overview

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What is 3D aerial base station position planning based on?

Wu J, Yu P, Feng L, et al. 3D aerial base station position planning based on deep Q-network for capacity enhancement. In: IFIP/IEEE symposium on integrated network and service management (IM), Washington, DC, 8-12 April 2019, pp.482-487. New York: IEEE. 18. Luo X, Zhang Y, He Z, et al.

Can multiple UAV-mounted base stations improve the coverage rate?

This article investigates a communication system assisted by multiple UAV-mounted base stations (BSs), aiming to minimize the number of required UAVs and to improve the coverage rate by optimizing the three-dimensional (3D) positions of UAVs, user clustering, and frequency band allocation.

Can unmanned aerial vehicles be a base station for IoT?

Recently, unmanned aerial vehicles (UAVs) have been reported a lot as aerial base stations (BSs) to assist wireless communication in Internet of Things (IoT). However, most results for UAV deployment require uniform access requirements and obstacle-free environment.

Do multi-UAV mounted BSS have a 3D deployment problem?

This paper investigated the 3D deployment problem of multi-UAV mounted BSs for UEs with non-uniform access requirements in obstacle-laden environment. A three-step algorithm was developed to achieve full coverage of all UEs with guaranteed QoS requirements.

How DQN algorithm is used to move air base stations?

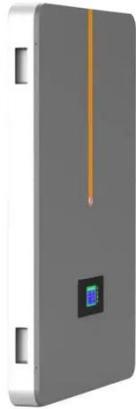
Location moving process of air base stations using DQN algorithms. After a certain scale of learning, the network structure parameters of DQN algorithm are obtained and saved as a model. When the model is directly applied in this scenario, the aerial-BSs will stay in the optimal position of system spectrum efficiency.

Is mmWave transmission suitable for direct communication?

In addition to the advantages of large bandwidth and high-speed rate, millimeter wave has narrow beam, good directivity, and high spatial resolution, which improves the transmission efficiency, so mmWave transmission suitable for direct communications can be a feasible method here.

## Three-dimensional communication extended base station

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### Modified Least Squares Algorithm for Three-Dimensional ...

Abstract The observed values of time of arrival (TOA) for the radio signals between the target and the wireless communication base stations are mainly affected by signal non-line-of-sight ...

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### MULTI-LEVEL DEPLOYMENT IN EXTENDED THREE-DIMENSIONAL ...

Jul 12, 2018 · In a two-dimensional WSN, the energy will be consumed more in large spaces. Therefore, this consumption will be more seriously increased in large three-dimensional spaces.



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### Three-Dimensional Resource Allocation in D2D-Based ...

Three-Dimensional Resource Allocation in D2D-Based V2V Communication  
Usman Ali Khan and Sang Sun Lee \*  
Department of Electronics & Computers,  
Hanyang University, Seoul 04763, ...

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## 3D Deployment of Multiple UAV-Mounted Base Stations for ...

...

Aug 17, 2025 · This article investigates a communication system assisted by multiple UAV-mounted base stations (BSs), aiming to minimize the number of required UAVs and to improve ...

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## Three-dimensional aerial base station location ...

May 1, 2020 · In this article, first, aiming at maximizing the spectral efficiency and considering the effects of line-of-sight and non-line-of-sight path loss for 5G ...

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## Three-Dimensional Deployment Optimization of UAVs Using ...

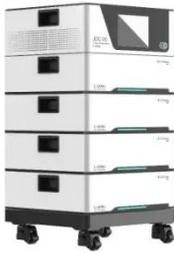
6 days ago · We propose a novel systematic approach for the deployment optimization of unmanned aerial vehicles (UAVs). In this context, this study focuses on enhancing the ...

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## CN108650629B

Jul 17, 2021 · The invention discloses an indoor three-dimensional positioning algorithm based on a wireless



communication base station, which comprises the following steps: firstly, aiming at ...

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## IEEE JOURNAL ON SELECTED AREAS IN ...

Apr 29, 2024 · three-dimensional mobility which also increases the probability of achieving line-of-sight (LOS) links with ground users due to their higher altitude. Meanwhile, owing to their ...



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## Three-Dimensional Cooperative Deployment Optimization of ...

Oct 28, 2024 · Three-Dimensional Cooperative Deployment Optimization of Multiple Drone Base Stations with Building Obstruction Considerations The surge in Internet of Things (IoT) ...

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## MULTI-LEVEL DEPLOYMENT IN EXTENDED THREE ...

Sep 13, 2024 · In this paper, we compare the energy efficiency of a three-

dimensional network in different extended spaces, then we organize the nodes deployment in these spaces so that ...

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### 3D Deployment of Unmanned Aerial Vehicle-Base Station ...

Aug 17, 2021 · This paper proposes an efficient three-dimension (3D) placement of a single UAV-assisted wireless network in such cases. Our proposed model assists the ground base station ...

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### Three-Dimensional Physics-Based Channel Modeling for ...

Jul 27, 2025 · We propose a three-dimensional channel model for base-station-to-unmanned-ground-vehicle communication, where a linear fluid antenna system is equipped on the ...

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### Three-dimensional positioning of wireless communication base station

Oct 2, 2017 · We have studied Chan-



Taylor two-dimensional positioning algorithm and propose an innovative Chan-Taylor three-dimensional positioning algorithm. And we apply it to the indoor ...

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## Three-dimensional wireless positioning method based ...

Sep 22, 2019 · Abstract: Aiming at the problem that the indoor three-dimensional positioning algorithm is complex and the accuracy is not high, this paper proposes a three-dimensional ...

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## Three-dimensional positioning of wireless communication base station

Request PDF , On Mar 1, 2017, Xiaodong Chang and others published Three-dimensional positioning of wireless communication base station , Find, read and cite all the research you ...

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## Three-Dimensional Resource Allocation in D2D-Based ...

Jan 23, 2020 · Abstract: Device-to-Device (D2D) communication is the major enabler of Vehicle-to-Everything communication in 3rd Generation Partnership Project (3GPP) Release 14. The ...

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## Measurement of Millimeter-wave 3D MIMO Channel in Large ...

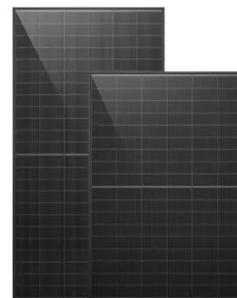
Mar 26, 2021 · Three-dimensional (3D) multiple-input multiple-output (MIMO) and millimeter wave (mm-wave) are key technologies for the future wireless communication. This paper proposes a ...

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## Three-dimensional Communication Channel Model of UAV

Jun 14, 2016 · Abstract: In the paper, it makes analysis the characteristics of UAV communication channel in the tree-dimensional space. The UAV small scale model base on multipath ...

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## Compact planar phased array antenna for extended V2X communication



May 1, 2024 · Abstract In this article, a new compact planar phased array antenna is proposed for blind spot reduction in V2X communications. The proposed antenna can be easily integrated ...

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## CN114389929B

The invention discloses a three-dimensional modulation method for high-speed transmission of a base station, which comprises the following steps: acquiring bit information transmitted at a ...



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## Cramér-Rao Bound Analysis and Beamforming Design for 3D Extended ...

Dec 10, 2024 · This paper considers an integrated sensing and communication (ISAC) system where a multi-antenna base station transmits a common signal for joint multi-user ...

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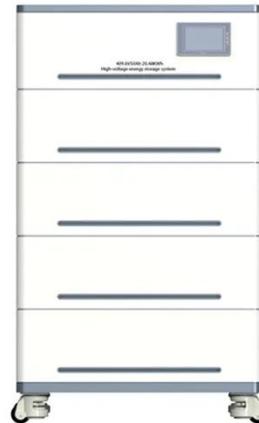
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## Three-dimensional aerial base station location ...

May 22, 2020 · In this article, for optimizing the three-dimensional (3D)

deployment of aerial-BSs for 5G mmWave networks, a classic deep ...

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### 3D Deployment of Multiple UAV-Mounted Base Stations for UAV Communications

Jan 5, 2021 · This article investigates a communication system assisted by multiple UAV-mounted base stations (BSs), aiming to minimize the number of required UAVs and to improve the ...

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### Modified Least Squares Algorithm for Three-Dimensional ...

Sep 2, 2020 · The observed values of time of arrival (TOA) for the radio signals between the target and the wireless communication base stations are mainly affected by signal non-line-of ...

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### Efficient base station deployment in specialized regions with ...



Jul 2, 2024 · Signal coverage quality and intensity distribution in complex environments pose a critical challenge, particularly evident in high-density personnel areas and specialized regions ...

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## Three-dimensional positioning of wireless communication base station

Mar 26, 2017 · We have studied Chan-Taylor two-dimensional positioning algorithm and propose an innovative Chan-Taylor three-dimensional positioning algorithm. And we apply it to the ...

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## (PDF) Modified Least Squares Algorithm for Three-Dimensional ...

Sep 2, 2020 · Modified Least Squares Algorithm for Three-Dimensional Target Location Based on Wireless Communication Base Stations

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## UAV Base Station Trajectory Optimization Based on ...

Jan 23, 2023 · UAV Base Station  
Trajectory Optimization Based on  
Reinforcement Learning in Post-disaster  
Search and Rescue Operations Shiye  
Zhao, Student Member, IEEE, Kaoru Ota,  
...

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### 3D deployment of UAV-mounted base stations for

Dec 1, 2023 · Recently, unmanned aerial vehicles (UAVs) have been reported a lot as aerial base stations (BSs) to assist wireless communication in Internet of Things (IoT). However, most ...

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### 3-D Positioning and Resource Allocation for Multi-UAV Base Stations

Aug 8, 2023 · In this paper, we propose to deploy multiple unmanned aerial vehicle (UAV) mounted base stations to serve ground users in outdoor environments with obstacles.

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