原来的 In this work, the road network is divided into multiple geographic zones within the RSU’s coverage in Fig. 1, which is composed of the MEC layer, and the cloud computing layer hierarchical architecture of computation offloading, numerous vehicle-to-RSU (V2I) cells underlay a macro cell. In which each RSU is equipped with a MEC server to provide computation offloading services to the vehicles. The detailed offloading process is described as follows. Firstly, the vehicles offload request messages by the wireless interface, which includes required communication resources, the task ID and submission time, and the expected service delay of the task to the cloud. Secondly, the MEC server makes scheduling according to the received request messages, including the task upload server and task computation server. Finally, after task upload, the task waits in the computation queue until one of the processors is available. We denote the set of vehicles and MEC servers in the mobile system as $$ and $$, respectively. Some notations are given in Table I.

In this work, the C-MEC vehicular network is shown in Fig. 1, which is composed of the MEC layer, and the cloud computing layer hierarchical architecture of computation offloading, numerous vehicles divided into multiple geographic zones within the RSU’s coverage underlay a cell, each RSU is equipped with a MEC server to provide computation offloading services to the vehicles. We denote the set of vehicles and MEC servers in the mobile system as $$ and $$, respectively. The high-speed mobile wireless communication link is defined as: V2RSU (V2R) link, and the fixed wired connection link is defined as: RSU to Cloud (R2C) link. The detailed offloading process is described as follows. **Firstly, the vehicles ofﬂoad request messages by the wireless interface, which includes required communication resources, the task ID and submission time, and the maximum tolerable service times of the task to the cloud. Second, the MEC server makes scheduling according to the received request messages, including the task upload server and task computation server. Finally, after the task is uploaded, the task waits in the compute queue until the server's processor processes it.**

Remark1

**In this article, we consider only simplified cases within one time slot to arrive at a tractable solution. Nevertheless, the proposed solution can be easily extended to the multi-segment scenario by adopting a** time division multiple access communication technology**. That is, the vehicles in each RSU coverage communicate are divided into different collections. Hence,** time resource is divided into multi-frames, and each frame is divided into several time slots. Different vehicles access its time slots when they communicate with the RSU**.**

先说清楚链路

把集合放在前面

卸载过程解释清楚

Remark改变语序，是因为复杂的问题可以很容易的转化为简单的问题，所以才出此下策

Different from the traditional cellular communication, Due to the fast mobility of vehicles, their CSIs are hard to be estimated precisely. In particular, RSU can only achieve the accurate knowledge of large-scale fading $$ of vehicular to RSU links while the small-scale fading $ $ is greatly influenced by the fast channel variations caused by the Doppler effect. We assume the CSIs are obtained through channel estimation \cite{Xiao2020}, Therefore, we model the small-scale fading channel estimation of $$ by using the first-order Gauss-Markov process \cite{Kim2011} in each transmission time interval as follows.

第一句逻辑

We assume that the estimated channel gain $$ denotes the estimate of $$ and $$ is exponentially distributed with unit mean \cite{Sakr2014}. Furthermore, $$ represents the correlation coefficient over V2R link, and $$ stands for the channel gain and follows a complex Gaussian distribution $$ and independent and uncorrelated of $$. The coefficient $$ quantifies the channel correlation between the two consecutive time slots and we assume that time correlation coefficient $$ is same for all VUEs. According to the Jakes statistical model for the fading channel \cite{Kim2011}, $$ is given as $$ , where $$ is the zero-order Bessel function of the first kind. $= $ is the maximum Doppler frequency, where $$ indicates the vehicle speed, $$ indicates the carrier frequency at 5.9 Ghz, and $$, $$ is a period feedback latency, both transmitter vehicles and RSU can know the accurate $$.