主要学习了 Suzhi Bi 等人的《Computation Rate Maximization for Wireless Powered Mobile-Edge Computing with Binary Computation Offloading》，这篇文章首先设计了双截面搜索算法来获得最优的时间分配，然后在二进制卸载的基础上主要设计了 CD 下降和 ADMM 算法来联合优化了多用户 MEC 网络。
MEC 模型如图所示：

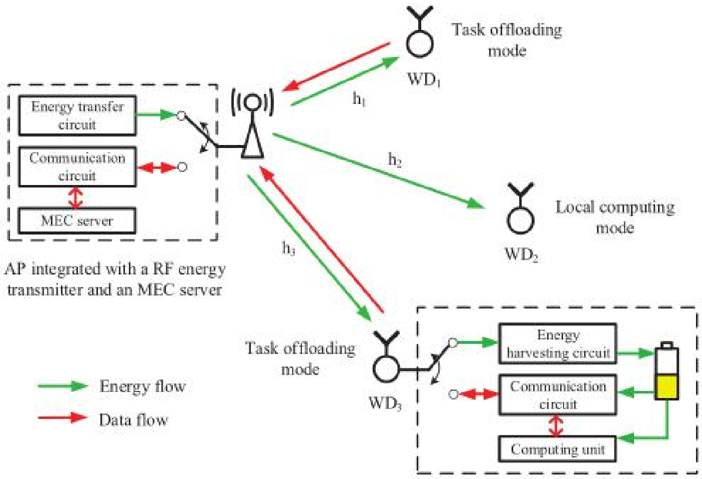
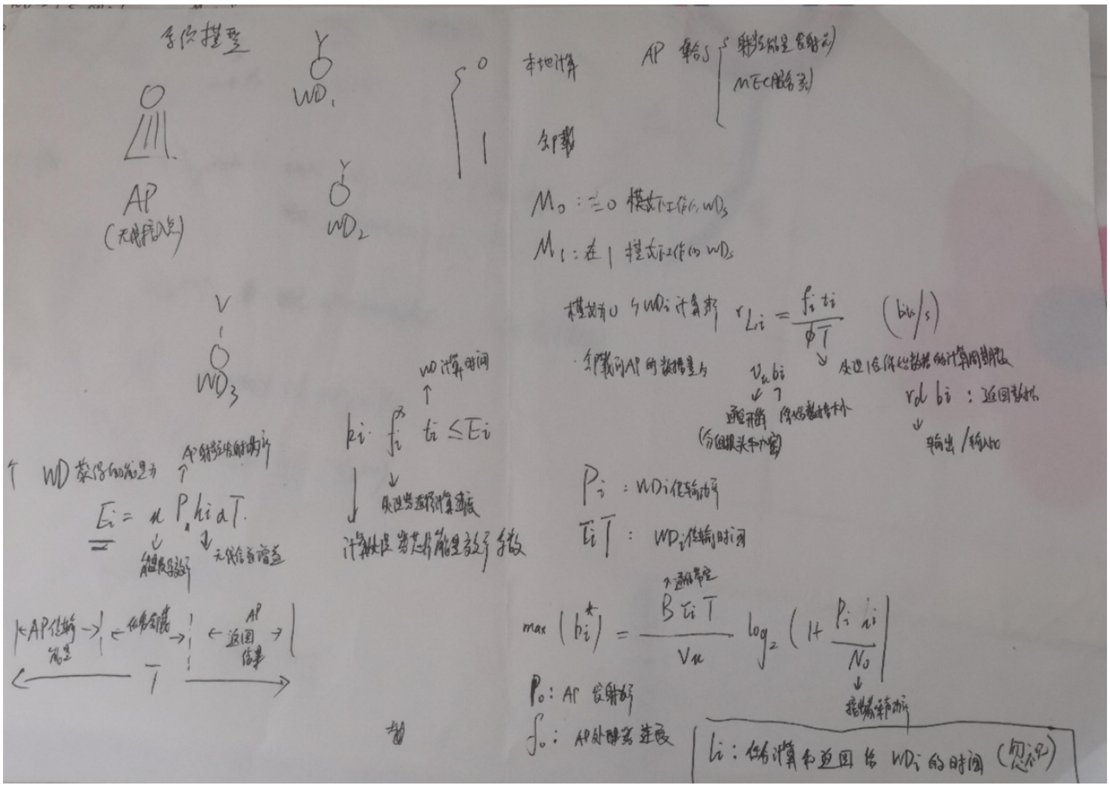
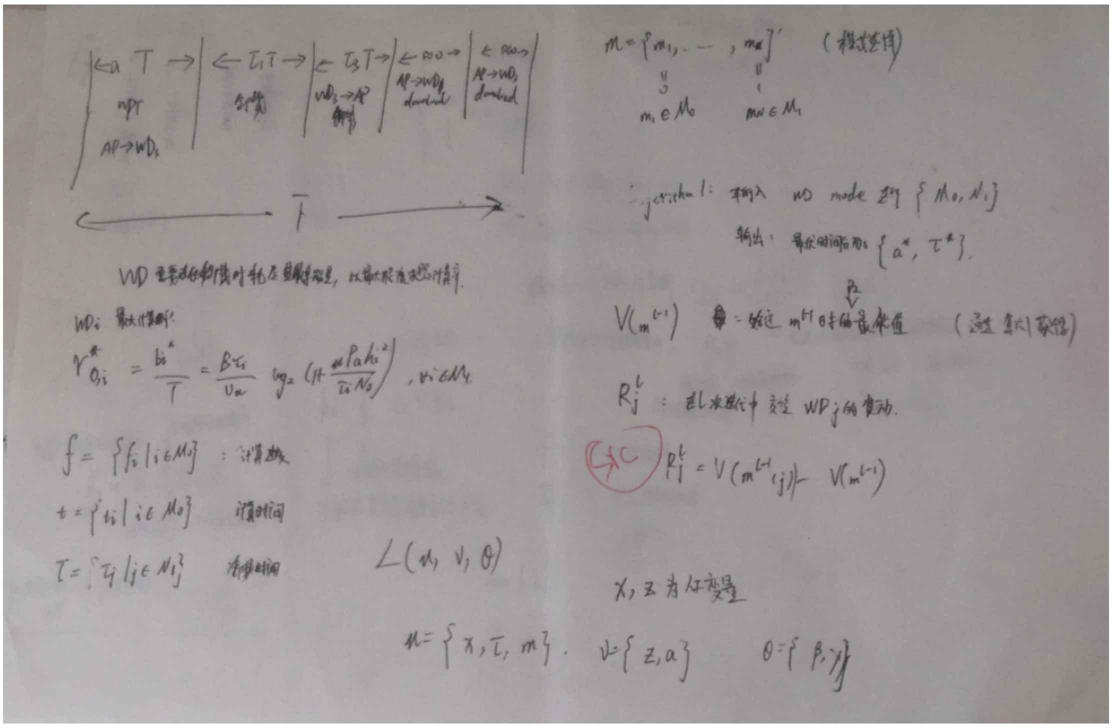


Fig. 1: An example 3-user wireless powered MEC system with binary computation offloading.

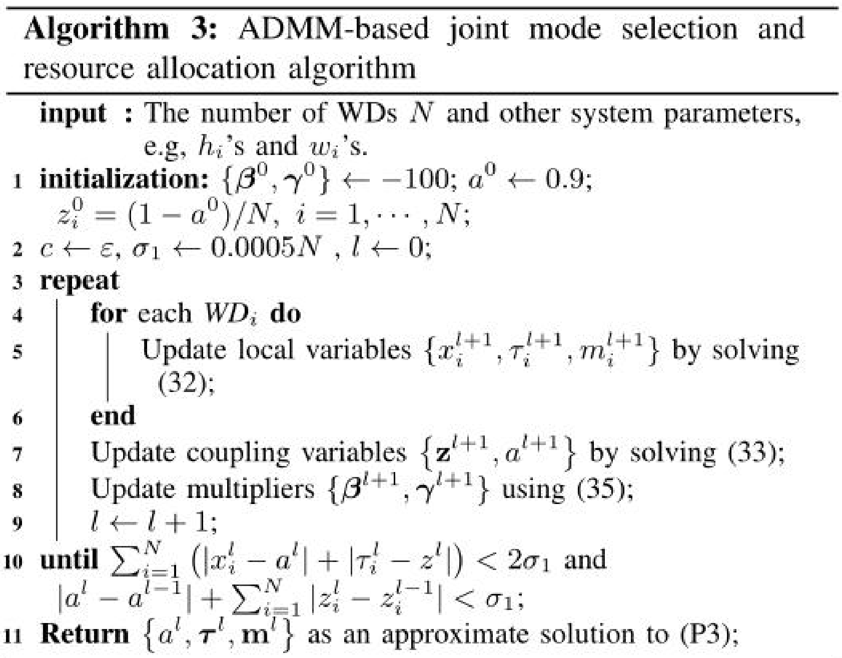
具体的参数如图所示：



然后作者进行数学建模，将问题转换为凸优化问题，使用拉格朗日乘子进行求解如图所示：



然后在维度较低的时候提出了 CD 下降法，在《UAV-Enhanced Intelligent Offloading for Internet of Things at the Edge》中也同样使用了 CD 下降，只是使用的场景有所区别。然后为了应对大型的 MEC 网络，解决计算复杂度高的问题，提出了基于 ADMM 的算法来优化计算模式选择和传输时间分配。伪代码如图：



Algorithm 3: ADMM-based joint mode selection and resource allocation algorithm

input : The number of WDs N and other system parameters, e.g, h_i's and w_i's.

initialization: $\{\boldsymbol{\beta}^0, \boldsymbol{\gamma}^0\} \leftarrow -100$; $a^0 \leftarrow 0.9$; $z_i^0 = (1 - a^0)/N,\ i = 1, \cdots, N$;

$c \leftarrow \varepsilon$, $\sigma_1 \leftarrow 0.0005N$, $l \leftarrow 0$;

repeat

  for each WD_i **do**

    Update local variables $\{x_i^{l+1}, \tau_i^{l+1}, m_i^{l+1}\}$ by solving (32);

  end

  Update coupling variables $\{\mathbf{z}^{l+1}, a^{l+1}\}$ by solving (33);

  Update multipliers $\{\boldsymbol{\beta}^{l+1}, \boldsymbol{\gamma}^{l+1}\}$ using (35);

  $l \leftarrow l + 1$;

until $\sum_{i=1}^{N} \left(|x_i^l - a^l| + |\tau_i^l - z^l|\right) < 2\sigma_1$ and $|a^l - a^{l-1}| + \sum_{i=1}^{N} |z_i^l - z_i^{l-1}| < \sigma_1$;

Return $\{a^l, \boldsymbol{\tau}^l, \mathbf{m}^l\}$ as an approximate solution to (P3);