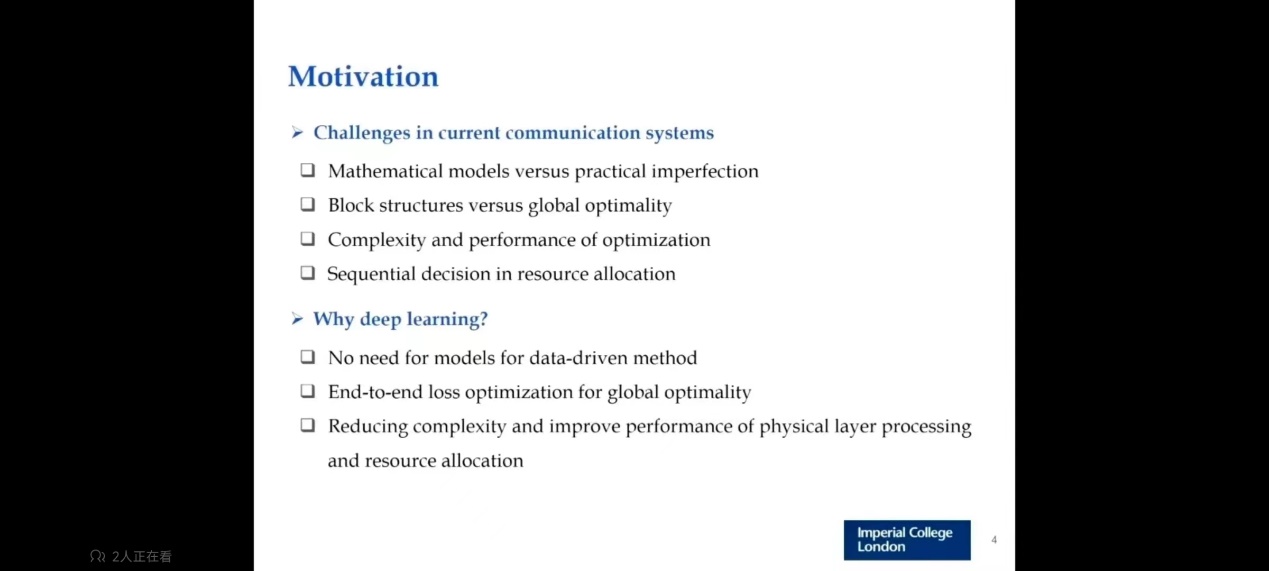
老师说是研究物理层的？ MIMO 、CSI feedback、 channel estimation、 millimeter wave (mmWave) communications

为什么要将AI引入通信



**Deep Learning Enabled Semantic Communication Systems**

我不理解这个jointly到底是什么意思

如何去辨别语句的相似度？ Sentence similarity

[最终信息模式：终结香农极限，语义通信的另类空间 (baidu.com)](https://baijiahao.baidu.com/s?id=1728098024382886194&wfr=spider&for=pc)

人类之间的通信目的是达意，我们使用语音交流说的每一句话，不仅仅是为了让对方听到而是听懂。在现代信息的传递上，目前的通信技术是信息信号的搬运而不是信息的传递。信息的传递主要是以信号波形或数据比特保真为原则，把提取和理解信号中的信息任务交给了人自身。从信号传递到信息理解是需要花费代价，对于大量信号的传递，传输效率与直接理解信息的通信方式需要重构变革。-》可是传输提取后的信息，我们能懂吗？-》还是说有个还原信息的过程？

语义通信的通用性是不是不太好

语义通信好像不怎么需要建模？

最近十篇文章：

**1.Deep Learning-Based Channel Estimation for Massive MIMO With Hybrid Transceivers**

In this paper, we propose a novel deep learning (DL) based framework for uplink channel estimation in HAD massive MIMO systems

Massive MIMO, channel estimation, hybrid analog-digital, angular space segmentation, deep learning.

**2.Learn to Adapt to New Environment from Past  
Experience and Few Pilot**

In this paper, we will significantly reduce the required amount of training data  
for new environments by leveraging the learning experience  
from the known environments

Therefore, we introduce few-shot  
learning to enable the communication model to generalize to new  
environments, which is realized by an attention-based method

Channel estimation, deep learning, few-shot  
learning, power delay profile, attention mechanism.

**3.LEO Satellite-Enabled Grant-Free Random Access  
with MIMO-OTFS**

his paper investigates joint channel estimation and  
device activity detection in the LEO satellite-enabled grant-free  
random access systems with large differential delay and Doppler  
shift.

Random access, OTFS, satellite communica-  
tions, message passing, Doppler shift

**4.Hybrid Precoding for Mixture Use of Phase Shifters and Switches in mmWave Massive MIMO**

To reduce the hardware complexity introduced by the large number of switches, we  
consider a group-connected VPS architecture and propose a HPD scheme, where the HPD problem  
is divided into multiple independent subproblems with each subproblem flexibly solved by the VPS-  
HPD or VPS-LC-HPD scheme.

Alternating minimization, hybrid precoding, millimeter wave (mmWave) communications, phase  
shifters, switches

**5.Overview of Deep Learning-based CSI Feedback in Massive MIMO Systems**

. In this paper, a comprehensive overview of state-of-the-art research on this topic is provided, beginning with basic DL concepts widely used in CSI feedback and then categorizing and describing some existing DL-based feedback works. The focus is on novel neural network architectures and utilization of communication expert knowledge to improve CSI feedback accuracy.

Index Terms—CSI feedback, massive MIMO, deep learning,  
overview

**6.0/1 Deep Neural Networks via Block Coordinate Descent**

# 7.Robust Semantic Communications with Masked VQ-VAE Enabled Codebook

# 8.QoE-Aware Resource Allocation for Semantic Communication Networks

# 9.Joint Optimization of Transmission and Computation Resources for Satellite and High Altitude Platform Assisted Edge Computing

* [Satellites](https://ieeexplore.ieee.org/search/searchresult.jsp?matchBoolean=true&queryText=%22Index%20Terms%22:Satellites&newsearch=true),
* [Edge computing](https://ieeexplore.ieee.org/search/searchresult.jsp?matchBoolean=true&queryText=%22Index%20Terms%22:Edge%20computing&newsearch=true),
* [Low earth orbit satellites](https://ieeexplore.ieee.org/search/searchresult.jsp?matchBoolean=true&queryText=%22Index%20Terms%22:Low%20earth%20orbit%20satellites&newsearch=true),
* [Task analysis](https://ieeexplore.ieee.org/search/searchresult.jsp?matchBoolean=true&queryText=%22Index%20Terms%22:Task%20analysis&newsearch=true),
* [Wireless communication](https://ieeexplore.ieee.org/search/searchresult.jsp?matchBoolean=true&queryText=%22Index%20Terms%22:Wireless%20communication&newsearch=true),
* [Precoding](https://ieeexplore.ieee.org/search/searchresult.jsp?matchBoolean=true&queryText=%22Index%20Terms%22:Precoding&newsearch=true),
* [Transmitting antennas](https://ieeexplore.ieee.org/search/searchresult.jsp?matchBoolean=true&queryText=%22Index%20Terms%22:Transmitting%20antennas&newsearch=true)

**10 也是语义通信**

**Deep Learning-based Channel Estimation for Beamspace mmWave Massive MIMO Systems. 引用441**

通过深度学习网络来解决信道估计问题（the characteristic is highly similar to a 2D natural image）

**Deep Reinforcement Learning based Resource Allocation for V2V Communications. 引用367**