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# 本科毕业论文(设计)

## 基于唱跳、Rap、篮球的学习方法

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中国海洋大学

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## 基于唱跳、Rap、篮球的学习方法

### 摘要

唱跳、Rap 和篮球是 cxk 的三个爱好特长。

唱跳是指唱歌和跳舞，是 cxk 的擅长之一。他在《偶像练习生》节目中以其出色的唱功和舞蹈实力获得了很高的人气。

Rap 是一种说唱艺术形式，也是 cxk 的擅长之一。在《偶像练习生》节目中，他展示了自己优秀的说唱技巧，得到了导师们的赞赏。

篮球是一项体育运动，也是 cxk 的爱好之一。他曾经是校队的篮球运动员，有着不错的篮球基础。

通过努力研习唱跳、Rap 和篮球等技能，cxk 展现出自己多才多艺的一面，同时也体现了他对音乐、舞蹈、运动的热爱和追求。

**关键词：**Transformer 模型, 唱跳, Rap, 篮球

# Learning methods based on singing and dancing, Rap and basketball

## **Abstract**

Singing and dancing, Rap and basketball are the three hobby specialties of CHOI Xu-kun.

Singing and dancing refers to singing and dancing, which is one of Cai XuKun's specialties. He gained high popularity with his excellent singing and dancing strength in the show "Idol Trainee".

Rap is a rap art form, which is also one of Cai XuKun's specialties. In the Idol Trainee program, he showed his excellent rapping skills and was appreciated by the mentors.

Basketball is a sport and one of Cai XuKun's hobbies. He used to be a basketball player of the varsity team and has a good basketball foundation.

By working hard on his skills of singing and dancing, Rap and basketball, Cai XuKun shows his versatility and also reflects his love and pursuit of music, dance and sports.

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**Keywords: Transformer, Singing and dancing, Rap, Basketball**

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# 1. 引言

## 1.1 课题研究背景及意义

一百多年以前,物理学家与化学家们研究出光谱成像技术,最初被用来检测材料中的物质成分。随着遥感成像技术的进步,80年代初期光谱成像技术被应用于地球检测上从而衍化出高光谱遥感技术<sup>[9]</sup>。高光谱图像是一种高维图像,可反应地物的空间信息和遥感信息。高光谱图像分类是指整合高光谱数据的信息,进行特征提取,并利用光谱信息丰富的特征对把不同的图像区分开来,用以达到对图片分类和目标的自动识别的目的。高光谱目标探测与分类技术逐渐发展为地面观测的一个重要的组成部分,在军事领域通常被用来目标检测和军事侦察等,在民用技术领域高光谱图像技术应用更加广泛,经常被运用于作物生长情况检测,油气勘探等领域,在科研中,高光谱图像分类技术也具有非常重要的研究意义。

## 1.2 国内外研究历史与研究现状

### 1.2.1 发展历史

最早的卷积神经网络可以追溯到20世纪80年代,日本科学家福岛邦彦提出了一个包含卷积层、池化层的神经网络结构 Neocognitron<sup>[1]</sup>。1998年,Yann Lecun在论文中提出了 LeNet-5<sup>[2]</sup>,该方法将BP算法运用于神经网络中,使其包含了最基本的卷积层、池化层以及全连接层,至此,卷积神经网络雏形基本形成。到了2012年,Alex Krizhevsky在论文中发表了 AlexNet<sup>[3]</sup>,它比 LeNet 使用了更深更宽的网络结构,使用 Relu 作为激活函数并采用了全新的 dropout 方法,在当年的 ImageNet 竞赛中大放异彩。AlexNet 之后,卷积神经网络进入了快速发展时期,比如牛津大学的 VGG<sup>[4]</sup>,在 AlexNet 的基础上进一步加深了网络结构,以及 Google 的 Google Net<sup>[5]</sup> 和微软提出的 ResNet<sup>[6]</sup> 等都是卷积神经网络中具有代表性的网络结构。

## 2. 示例章节

卷积神经网络的参数共享意味着对所有的样例采用相同的卷积核参数，而动态卷积，也即条件参数卷积所提出的便是为每个样例学习一个特定的卷积核参数。

### 2.1 示例章节

#### 2.1.1 示例章节

中国海洋大学的发展目标是：到 2025 年建校百年前后，将学校建设成为国际知名，特色显著的高水平研究型大学；到本世纪中叶或更长一段时间，立足海洋强国建设，大力推进改革创新，通过强化建设和持续发展，努力实现全面跨越，力争使学校跻身特色显著的世界一流大学行列。

$$x = y + z \tag{2.1}$$

测试图片如图2-1suoshi:



图 2-1: 中国海洋大学

测试表格如表2-1suoshi:

表 2-1: 一个基本的三线表

第一列	第二列	第三列
文字	English	$\alpha$
文字	English	$\beta$
文字	English	$\gamma$

测试公式如式2.2suoshi:

$$\lim_{x \rightarrow 0} \frac{e^x - 1}{2x} \frac{\begin{bmatrix} 0 \\ 0 \end{bmatrix}}{H} \lim_{x \rightarrow 0} \frac{e^x}{2} = \frac{1}{2} \tag{2.2}$$

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