



高等院校计算机类课程“十二五”规划教材

计算机专业英语

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内容提要

本书根据目前我国高等院校计算机课程开设的实际情况,并结合作者多年从事计算机专业课程教学和计算机双语教学的实际经验编写而成。

本书以英语表达形式介绍了计算机专业基础知识、计算机专业技术及其相关的前沿知识,并根据该课程的内在联系将其分为8个单元,分别介绍了计算机硬件、计算机软件、字处理软件 Word 2003、电子表格 Excel 2003、演示文稿 PowerPoint 2003、多媒体及其应用以及计算机网络等内容。每一单元都包含有基础知识、扩展知识以及配套的习题。本书还在课文相应的位置附有相关词汇的注释、短语及关键术语的解释,目的是让读者能做到无障碍阅读,有利于读者对课文内容能更进一步理解和掌握,从而提高读者的计算机专业英语的阅读和运用能力。

本书内容丰富、实用性强,适合作为高校计算机专业英语教材和双语教材,也可供计算机相关专业技术人员学习和参考。

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前 言

计算机专业英语是一门集计算机专业知识和培养英语运用能力为一体的应用型课程。随着高等教育对人才培养提出新的和更高的要求,计算机专业英语已成为人们了解计算机基础知识的最直接、最便利的途径,成为人们提高计算机应用能力的重要手段和方法,成为人们掌握计算机前沿技术在各领域具体应用的有效渠道和平台,也成为学生进一步深造和发展的必要条件。

为了帮助读者更好地掌握计算机专业英语知识,提高读者的计算机专业英语运用能力,作者根据自己多年从事计算机专业教学和计算机双语教学的实践经验特编写本书。

本书内容丰富、综合性强。通过对本书的学习,读者不仅可以掌握大量的计算机专业英语词汇,能基本看懂计算机的硬件、软件、应用以及多媒体和网络等方面的专业资料,从而掌握必要的计算机专业知识,而且还可以培养阅读、理解和翻译计算机英语文献的能力。

本书具有以下显著的特点:

(1) 选材新颖。本书根据作者多年从事计算机专业教学和计算机双语教学的实践经验,并结合大学计算机基础课程教学大纲要求进行编写,选材所涉及的计算机专业内容广泛且反映了计算机专业领域的最新技术成果。

(2) 知识体系完整。本书从计算机的发展简史、发展趋势出发,详细介绍了计算机的硬件、系统软件、应用软件(如字处理软件 Word 2003、电子表格 Excel 2003、演示文稿 PowerPoint 2003)、多媒体技术及其应用等知识。在对一台计算机的体系结构有了充分的认识和了解的基础上又进一步介绍了多台计算机的互联技术,因此其结构合理、脉络清晰、知识体系完整。

(3) 无障碍阅读。本书在适当的位置附有相关词汇的注释、短语及关键术语的解释,力求让读者能无障碍阅读,使得即使英文水平一般的读者也能轻松阅读并理解和掌握相关计算机知识。

(4) 便于教师讲解。本书行文通俗易懂、图文配合恰当,理论与实际操作结合紧密,符合计算机及各专业学生的接受能力,便于任课教师的讲解。

本书的内容包括:

第1章首先介绍了什么是计算机、计算机的发展和分类等基础知识,作为扩展知识,又介绍了虚拟现实技术、生物计算机和量子计算机等内容。

第2章主要介绍了计算机的硬件。首先介绍了目前大多数计算机的体系结构



——冯·诺依曼体系结构，然后从系统单元和外部设备这两大组成部分对冯·诺依曼体系结构做了详细介绍，最后作为扩展知识，介绍了冯·诺依曼体系结构的瓶颈问题，以及与冯·诺依曼体系结构有本质区别的哈佛结构。

第3章主要介绍了计算机的软件。从计算机的系统软件（主要介绍了 Microsoft Windows XP 操作系统）、程序设计语言（机器语言、汇编语言和高级语言）和应用软件几个方面对计算机软件系统进行了详细地介绍。在知识扩展部分介绍了操作系统的发展。

第4章主要介绍了字处理软件 Microsoft Office Word 2003。这是办公软件中最常用的一款应用软件，因此采用了大量篇幅详细地介绍了 Microsoft Office Word 2003 的启动、窗口组成以及如何编辑文档、格式化文档和打印文档。

第5章主要介绍了电子表格 Microsoft Office Excel 2003。这款软件也是目前流行的，具有强大的数据处理能力的电子表格应用软件，因此也采用了大量的篇幅对 Microsoft Office Excel 2003 的基本概念、启动、组成以及如何创建一个工作表、编辑工作表、工作表的操作、图表的创建做了详细地介绍。

第6章主要介绍了 Microsoft Office PowerPoint 2003。这款软件也是 Office 2003 中的一款常用的演示文稿应用软件，主要从演示文稿的创建、编辑以及放映等几个方面进行了详细地介绍。

第7章主要介绍了多媒体技术及其应用。主要从媒体、多媒体、多媒体软件、多媒体技术和多媒体应用等几个方面进行了详细的介绍。

第8章主要介绍了计算机网络技术。从什么是计算机网络、网络介质、网络的基本组成、通信协议以及网络的分类加以介绍，着重介绍了因特网及其关键技术。在扩展知识部分，详细介绍了 IPv6、信息高速公路、赛博空间以及神经网络。

本书由国家高级程序员陈锐、空军航空大学的于秋水、集美大学计算机工程学院的张子栋担任主编，空军航空大学的孙金志、焦作市教育局的郑跃杰、四川绵阳师范学院外国语学院的王晓宏担任副主编，空军航空大学的姜璐、宋小华和中原工学院的夏敏捷参与编写。本书由长春理工大学的田成军副教授担任主审。

本书在编写过程中，得到许多同仁的悉心指导和热情帮助，作者在此表示衷心感谢！另外，本书参考了大量的文献资料，在此特向这些文献资料的作者及在互联网上提供信息的无数没有留下名字的朋友们表示深深的感谢。由于作者水平有限，加之时间仓促，书中难免有错误之处，敬请各位专家及广大热心的读者批评指正。

作者



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Unit 1 Introduction to Computer

Since the computers were invented in 1946, computers came along and changed everything. They have become so *essential* in our life that people use them almost everywhere.

The computer is used in people's daily lives to make most tasks easier. Almost every major business, banks, airports, *tire* shops, fast food restaurants, major stores, etc., use computers. Most *automobiles* are *computerized* nowadays. If the computer *messes* up, it could cause loss of transportation until repaired.

To be *competent* with computer technology, you need to know: What is a computer? Why is it so popular?

essential [ˈɛsənʃəl]

adj. 实质的, 基本的

tire [ˈtaɪə] n. 轮胎

automobile [ˌɔ:təməˈbi:l]

n. 汽车

computerize [kəmˈpjʊ:təraɪz]

vt. 用计算机处理, 使计算机化

mess [mes] v. 弄乱, 混乱

competent [ˈkɒmpɪtənt]

adj. 有能力的, 胜任的

1.1 What's a computer

The word computer has been part of the English language since 1646, but if you look in a dictionary printed before 1940, you might be surprised to find a computer defined as a person who performs calculations! Prior to 1940, machines designed to perform calculations were referred to as calculators and *tabulators*, not computers. The modern definition and use of the term computer emerged in the 1940s, when the first electronic computing devices were developed.

tabulator [ˈtæbjuleɪtə(r)]

n. 制表机

desktop [ˈdesktp]

n. [计] 桌面, 桌上型电脑

storage [ˈstɔ:ridʒ] n. 存储器

instruction [ɪnˈstrʌkʃən]

n. 指令

If you use a *desktop* computer, you might already know that there isn't any single part called the "computer". It is a system of many parts working together. It can accept data from an input device, process data in the CPU, store data using *storage*, and produce a result on output device, all according to a series of *instructions* from a computer program (See Figure 1.1).

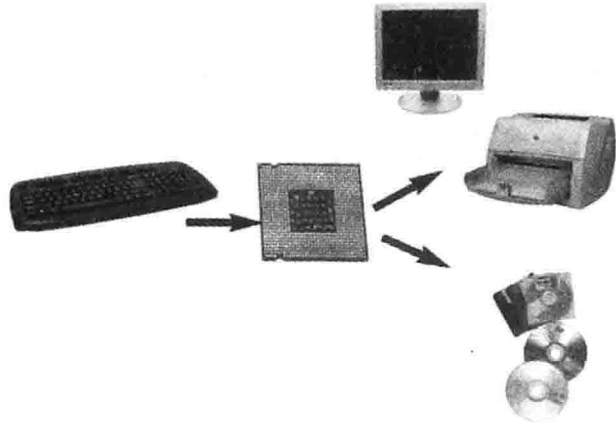


Figure 1.1 The component of computer system

1.2 The evolution of the Computer

1.2.1 The first electronic computer in the world

Military needs during World War II caused a great thrust forward in the evolution of computers. In 1943, Tommy Flowers completed a secret British *code-breaking* computer called Colossus, which was used to *decode* German secret messages. Unfortunately, that work went largely uncredited because Colossus was kept secret until many years after the war.

Besides code-breaking, systems were needed to calculate weapons *trajectory* and other military functions. In 1946, John P. Eckert, John W. Mauchly, and their associates at the Moore School of Electrical Engineering at the University of Pennsylvania built the first large-scale electronic computer for the military. This machine became known as ENIAC.

The first electronic computer—Electronic Numerical Integrator and Computer (ENIAC) (See Figure 1.2) occupied a room 30 by 50 feet in size and weighed 30 tons. A total of 40 *panels* were arranged in a U-shape that measured 80 feet long at the front, and the 18,000 *vacuum tubes* required were more than 20 times as many as the total employed by all various systems aboard a wartime B-29 bomber. ENIAC's *circuits* included 500,000 soldered joints with 70,000 *resistors* and 10,000 *capacitors*. ENIAC also had its own dedicated power lines and used 150 kilowatts of electricity. It was used mainly

Military [ˈmilitəri]

adj. 军事的, 军用的

code-breaking: 密码破译

decode [di:kəud]

vt. 解码, 译解

trajectory [ˈtrædʒiktəri]

n. 轨道, 弹道, 轨线

panel [ˈpænl] n. 面板, 仪表板

vacuum tubes: 真空电子管

circuit [ˈsə:kit] n. 电路

resistor [riˈzistə] n. [电]电阻器

capacitor [kəˈpæsɪtə] n. 电容器



for military and scientific research applications such as *aeronautics*, *ballistics*, *meteorology*, and nuclear weapons. It remained in operation until 1955.



Figure 1.2 The first electronic computer—ENIAC

Hailed by *The New York Times* as an amazing machine which applies electronic speeds for the first time to mathematical tasks *hitherto* too difficult and *cumbersome* for solution, but the ENIAC was a revolutionary piece of machinery in its day. The invention of this first *all-purpose* digital computer signaled the birth of the information Age.

1.2.2 The generations of computer development

Any modern digital computer is largely a collection of electronic *switches*. These switches are used to represent and control the routing of data elements called *binary digits* (or bits). Because of the on-or-off nature of the binary information and signal routing the computer uses, an efficient electronic switch was required. According to the collection of electronic switches, the history of computer development is often broken down into different generations.

● The First Generation: *The Vacuum Tube Age*

During the first generation, computers were built with *vacuum tubes* — electronic tubes that were made of glass and were about the size of *light bulbs* (See Figure 1.3) for *circuitry* and *magnetic drums* for memory, and were often enormous, taking up entire rooms. Unfortunately, the tube was *inefficient* as a switch. It consumed a great deal of electrical power and gave off enormous heat—a significant problem in the earlier systems. Primarily because of the heat they generated, tubes were *notoriously* unreliable—in larger systems, one failed every couple of hours or so.

The first generation computers *relied on machine language*, and every CPU has its own unique machine language,

aeronautics [ˌɛərəˈnɔ:tiks]

adj. 航空学, 航空术

ballistics [bəˈlɪstiks] n. 弹道学

meteorology [ˌmi:tjəˈrɒlədʒi]

n. 气象学

hitherto [ˌhiðətu:]

adv. 迄今, 至今

cumbersome [ˈkʌmbəsəm]

adj. 笨重的

all-purpose: 通用的, 多用途的

switch [swɪtʃ] n. 开关

binary [ˈbaɪnəri] adj. 二进制的

digit [ˈdɪdʒɪt] n. 阿拉伯数字

the vacuum tube age:

真空电子管时代

vacuum [ˈvækjuəm]

adj. 真空的

tube [ˈtju:b] n. 电子管

light bulb: 电灯泡

circuitry [ˈsɜ:kɪtri] n. 电路, 线路

magnetic drums: 磁鼓

inefficient [ˌɪniˈfɪʃənt]

adj. 效率低的

notoriously [ˌnɒtəˈrɪəs]

adj. 声名狼藉的

rely on: 依赖, 依靠

machine language: 机器语言

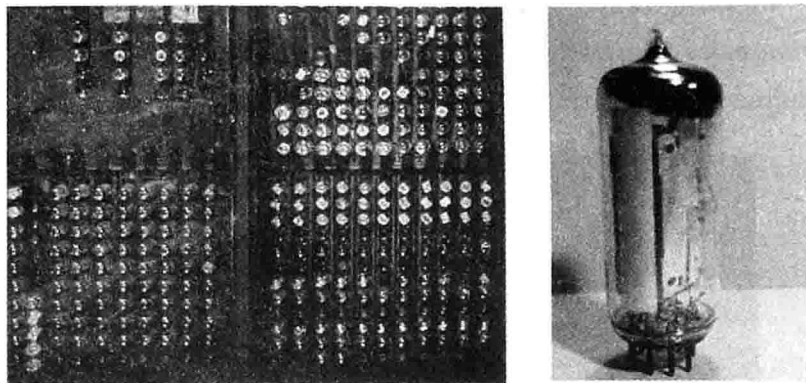


Figure 1.3 ENIAC used vacuum

programs must be rewritten or recompiled, therefore, to run on different types of computers. Input was based on punched cards and paper tape, and output was displayed on *printouts*.

printout ['print ,aut]

n. [计]打印输出

transistor [træn 'zistə]

n. [电子]晶体管

● The Second Generation: The Transistor Age

The invention of the *transistor* (See Figure 1.4) was one of the most important developments leading to the personal computer revolution. The transistors replaced vacuum tubes and used in the second generation of computers. The transistor, which essentially functions as a *solid-state* electronic switch, replaced the less-suitable vacuum tube. Because the transistor was so much smaller and consumed significantly less power, a computer system built with transistors was also much smaller, faster, and more efficient than the first generation computer system built with vacuum tubes.

solid-state: 固(体状)态

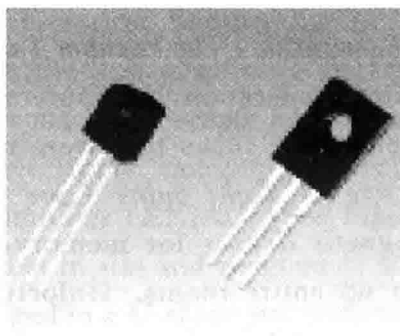


Figure 1.4 The transistors

This generation computers still relied on *punched cards* for input and *printouts* for output. They moved from binary machine language to symbolic, or *assembly language*, which allowed programmers to specify instructions in words.

punched card: 打孔卡, 穿孔卡片

assembly language: 汇编语言



● The Third Generation: The Integrated Circuit Age

With the development of the *integrated circuit*, the third generation of modern computers is known for using integrated circuits instead of individual transistors. An integrated circuit (IC) is a complete electronic circuit on a small chip made of *silicon*, which drastically increased the speed and efficiency of computers. These computers were more reliable and *compact* than computers made with transistors, and they cost less to manufacture.

Instead of punched cards and printouts, *keyboards* and *monitors* were used to interacted with the third generation computers.

● The Fourth Generation: The Large Scale or Very Large Scale Integrated circuit Age

This generation is characterized by more and more transistors being contained on a silicon chip. At first there was *Large Scale Integration (LSI)*, with hundreds and thousands of transistors per chip, then came *Very Large Scale Integrated (VLSI)*, with tens of thousands and hundreds of thousands of transistors. The *trend* continues today.

Each generation of computers is characterized by major technological development that fundamentally changed the way computers operate, resulting in increasingly smaller, cheaper, more powerful and more efficient and reliable devices. With each new generation, the *circuitry* has gotten smaller and more advanced than the previous generation before it.

integrated circuit: 集成电路

silicon ['silikən]

n. [化]硅, 硅元素

compact ['kɒmpækt]

adj. 紧凑的, 简洁的

keyboard ['ki:bɔ:d] *n.* [计] 键盘

monitor ['mɒnitə] *n.* 监视器

Large Scale Integration (LSI):

大规模集成电路

Very Large Scale Integrated:

超大规模集成电路

trend [trend] *n.* 倾向, 趋势

circuitry ['sɜ:kɪtri] *n.* 电路, 线路

1.3 Computer Categories

Computers are available in different shapes, sizes and weights, *due to* these different shapes and sizes they perform different sorts of jobs from one another.

due to: 由于

They can also be classified in different ways. According to the size, speed, computing power and application, computers can be divided into six *categories*, though there is *considerable overlap*. Here we are going to introduce different classifications of computers one by one. We will discuss what are in classifications and what job they perform.

category ['kætigəri] *n.* 种类

considerable [kən'sɪdərəbl]

adj. 相当大(或多)的

overlap ['əʊvə'leɪp]

v. (与...) 交叠

handheld computer:掌上电脑

miniature ['minjətʃə]

adj. 微型的, 缩小的

operating system:操作系统

WI-FI:基于 IEEE 802.11b 标准的无线局域网

Bluetooth:蓝牙, 一种无线通信的标准

automobile [ˌɔ:təmə'bi:l] n. 汽车

microphone ['maɪkrəfəʊn]

n. 扩音器, 麦克风

headset ['hedset]

n. 戴在头上的耳机或听筒

lithium battery:锂电池

personal digital assistant

(PDA):个人数字助理

touch-screen:触摸屏

smartphone:智能手机

barcode:条形码

smart card readers:

智能卡读卡器

laptop computer:膝上型电脑

self-contained ['selfkən'teɪnd]

adj. 设备齐全的, 独立的

1.3.1 handheld computers

A *handheld computer* is a small, hand-held computing device, typically having a display screen with touch input and/or a *miniature* keyboard and weighing less than 2 pounds (0.91 kg). Apple, HTC, Samsung, LG, Research in Motion (RIM) and Motorola are just a few examples of the many manufacturers that produce these types of devices.

A handheld computing device has an *operating system* (OS), and can run various types of application software, known as apps. Most handheld devices can also be equipped with *WI-FI*, *Bluetooth* and GPS capabilities that can allow connections to the Internet and other Bluetooth capable devices such as an *automobile* or a *microphone headset*. A camera or media player feature for video or music files can also be typically found on these devices along with a stable battery power source such as a *lithium battery*. (See Figure 1.5)

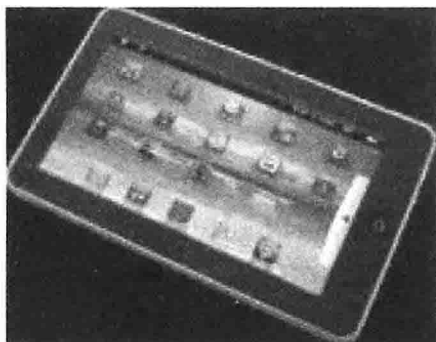


Figure 1.5 Handheld computer

Early pocket sized ones were joined in the late 2000s by larger but otherwise similar tablet computers. As in a *personal digital assistant* (PDA), the input and output are often combined into a *touch-screen* interface.

Smartphones and PDAs are popular amongst those who wish to use some of the powers of a conventional computer in environments where carrying one would not be practical. Enterprise digital assistants can further extend the available functionality for the business user by offering integrated data capture devices like *barcode*, RFID and *smart card readers*.

1.3.2 Laptop computers

A *laptop computer* is a *self-contained*, lightweight, *portable* unit that can operate on battery power. The most



common laptop design is sometimes described as a *clamshell* because it opens up like a big *bivalve*, with the keyboard in the bottom half and the screen in the top. Figure 1.6 shows a typical laptop computer.



Figure 1.6 Laptop computer

portable ['pɔ:təbl]

adj. 轻便的, 便携式的

clamshell ['klæmfəl] *n.* 蛤壳

bivalve ['baivælv] *n.* 双壳类

1.3.3 Microcomputers

The *microcomputers* are also called personal computers (PC). They are usually used at home or at offices by one person. People often use them to write papers or letters, listen to music, play games and *surf* the internet. So, almost all the computer users are *familiar* with the personal computers. They normally know what is the personal computer and what are its functions. A desktop computer is a kind of microcomputer, which is designed for *stationary* use on a desk or table. (See Figure 1.7)

microcomputer

['maikrəʊkəmputə(r)]

n. 微型计算机

surf [sɜ:f] *vt.* 在...冲浪

familiar [fə'miljə] *adj.* 熟悉的

stationary ['steɪf(ə)nəri]

adj. 固定的



Figure 1.7 Desktop computer

1.3.4 Minicomputers

Minicomputers are *multi-user* systems. Many people use them at the same time by means of *remote terminals* or personal computers. (See Figure 1.8)

minicomputer ['minikəm ,pjutə]

n. 小型机

multi-user; *n.* [计]多用户

remote terminals; 远程终端
(设备)



Figure 1.8 Minicomputer

1.3.5 Mainframes

Mainframes are huge, powerful multi-user computers. They are designed to *handle* large amounts of processing jobs in large *corporations* or government departments. They are capable of supporting hundreds or thousands of users *simultaneously*.

This computer is commonly used in big hospitals, air line reservations companies, and many other huge companies prefer mainframe because of its capability of *retrieving* data on a huge basis. This is normally too expensive and out of reach from a salary-based person who wants a computer for his home. (See Figure 1.9)



Figure 1.9 Mainframe

1.3.6 Supercomputers

Supercomputers are very large groups of computers that work together, combining their abilities to perform tasks that *individual* desktop computers would be incapable of. These include highly intensive calculations such as problems

mainframe [ˈmeɪnfreɪm]
n. [计]主机,大型机
handle [ˈhændl] vt. 处理,操作
corporation [ˌkɔːpəˈreɪʃən]
n. 公司,企业
simultaneously [sɪməlˈteɪniəsli]
adv. 同时地
retrieve [rɪˈtriːv]
v. 重新得到,找回

Supercomputer [ˌsjuːpəˈkɒmpjuːtə]
n. [计]超型计算机
individual [ˌɪndɪˈvɪdʒuəl]
n. 个人;adj. 个体的,个人的



involving *quantum mechanics*, *weather forecasting*, climate research, *astronomy*, *molecular modeling* and *physical simulations* (such as simulation simulation of *nuclear weapons detonations* and research into *nuclear fusion*).

Supercomputers were first developed in the 1960s. They were designed primarily by Seymour Cray at Control Data Corporation, which led the market into the 1970s, until Cray left to form his own company, Cray Research. He then *took over* the supercomputer market with his new designs, holding the top spot in supercomputing for five years (1985—1990). In the 1980s, a number of smaller *competitors* entered the market, in parallel to the creation of the “minicomputer” market, but many of these disappeared in the mid-1990s supercomputer market *crash*. (See Figure 1.10)



Figure 1.10 Supercomputer

Today, supercomputers are typically one of a kind custom designs-produced by traditional companies such as Cray, IBM and Hewlett-Packard, who had purchased many of the 1980s companies to gain their experience.

This computer is not used as a PC in a home neither by a student in a college. Governments specially use this type of computer for their different calculations and heavy jobs.

Different industries also use this huge computer for designing their products.

In most of the Hollywood's movies it is used for *animation* purposes. This kind of computer is also helpful for forecasting weather reports worldwide.

quantum mechanics:量子力学
weather forecast:天气预报
astronomy [ə'strɒnəmi]

n. 天文学

molecular model:分子模型

physical simulation:物理仿真

nuclear weapons detonation:

核武器爆炸

fusion [ˈfjuːʒən] n. 融化, 熔合

take over:把...从一地带到另

一地, 接收, 接管

competitor [kəm'petitə]

n. 竞争者

crash [kræʃ] v. 碰撞, 破产

animation [æni'meɪʃən] n. 动画



1.4 Expanding Your Knowledge

so far: 迄今为止

overcame [ˌəʊvəkeɪm]

v. overcome 的过去式, 战胜

So far computers haven't *overcome* peoples' brains, but in the near future computers will be more intelligent than we could ever dreamed about it. Soon every step that we make will be followed by computers. They will be in everyday life, in everything we do. There will be many areas affected by the wide use of computers, areas such as home, work, schools, automobiles, electronics, and humans. Although these areas are already affected, they will be even more as we move into the future.

1.4.1 The Role of Computers in Our Future

as for: 至于

To begin this discussion I will show you the effects on the work place and humans. *As for* humans in the work place, work will become easier. So this means less stress for humans because the computers will be doing all the work. This in turn means that humans will be doing less and less because the computers will be slowly taking over. *As for* a human going to work, this may only consist of telling a computer what to do all day. Or even from your own home, *waking up* and telling your computer what to do so you do not even have to go into work. Now for communication with computers, this may get so advanced that your computer may even ask you questions about the work it is doing and that you are getting paid to do. So this is where I see computers going as far as work and humans.

wake up: 醒来

Now for computers in the schools, I feel we will soon have no books and all work will be done on computers. Even homework will be done on the internet and *e-mailed* to the teacher. Children will be taught about computers at a younger and younger age. This in turn will make the younger *generations* more and more skilled in electronics and understanding how they work. This will have a very large impact on their way projects or work is viewed.

e-mail [i:meɪl] n. 电子邮件

generation [ˌdʒenə'reɪʃən]

n. 一代人

The next step is computers in the home. Computers will play a major *role* in home. They will automatically pull the bread into *toast* it with no *lever*. It will in turn tell you how your food is doing while it is cooking in the *microwave* and

role [rəʊl] n. 角色, 任务

toast [təʊst] vt. 烤(面包)等

lever [ˈlevə] n. 杆, 控制杆