

Tao of Programming - Geoffrey James

The Silent Void

Book One

第一篇 静寂的空宇

Thus spake the master programmer:

编程大师如是说：

"When you have learned to snatch the error code from the trap frame, it will be time for you to leave."

“当你从我手中夺走水晶球时，就是你离开的时候了。”

1.1

Something mysterious is formed, born in the silent void. Waiting alone and unmoving, it is at once still and yet in constant motion. It is the source of all programs. I do not know its name, so I will call it the Tao of Programming.

寂静的虚空里诞生了神秘的东西，这种东西恒久存在永不消失，它是所有程序的根源所在，我不知道怎么形容它，姑且称它为编程之道。

If the Tao is great, then the operating system is great. If the operating system is great, then the compiler is great. If the compiler is greater, then the applications is great. The user is pleased and there is harmony in the world.

如果道是完美的，那么操作系统就是完美的，如果操作系统是完美的，那么编译器就是完美的，如果编译器是完美的，那么应用程序就是完美的，所以用户心满意足，整个世界因此和谐。

The Tao of Programming flows far away and returns on the wind of morning.

编程之道去如黄鹤来如晨风。

1.2

The Tao gave birth to machine language. Machine language gave birth to the assembler.

道生机器语言，机器语言生汇编器。

The assembler gave birth to the compiler. Now there are ten thousand languages.

汇编器生编译器，最后产生上万种高级语言。

Each language has its purpose, however humble. Each language expresses the Yin and Yang of software. Each language has its place within the Tao.

不论多么的微不足道，每种语言都有它自己的目的，每种语言都表达了软件的阴阳两极。每种语言都各得其道。

But do not program in COBOL if you can avoid it.

但是尽量不要用COBOL语言。

1.3

In the beginning was the Tao. The Tao gave birth to Space and Time. Therefore, Space and Time are the Yin and Yang of programming.

道之初，带来了空间和时间，所以，空间和时间是编程的阴阳两极。

Programmers that do not comprehend the Tao are always running out of time and space for their programs. Programmers that comprehend the Tao always have enough time and space to accomplish their goals.

不懂编程之道的程序员常常把空间和时间消耗殆尽，得道的程序员则总是有足够的空间和时间

去完成编程任务。

How could it be otherwise?
否则会是什么样呢？

1.4

The wise programmer is told about the Tao and follows it. The average programmer is told about the Tao and searches for it. The foolish programmer is told about the Tao and laughs at it.
上士闻道，从而行之。中士闻道，谨而寻之。下士闻道，大笑之。

If it were not for laughter, there would be no Tao.
大笑不足为道。

The highest sounds are the hardest to hear. Going forward is a way to retreat. Greater talent shows itself late in life. Even a perfect program still has bugs.
希音不闻，进即是退，大器晚成。任何程序都有漏洞。

The Ancient Masters

Book Two

第二篇 古代的大师

Thus spake the master programmer:
编程大师如是说：
"After three days without programming, life becomes meaningless."
三日不编程，食肉无味。

2.1

The programmers of old were mysterious and profound. We cannot fathom their thoughts, so all we do is describe their appearance.
远古时代的编程大师们高深莫测，我们不能揣测他们的所思所想，只能描述外表所见。

Aware, like a fox crossing the water. Alert, like a general on the battlefield. Kind, like a hostess greeting her guests. Simple, like uncarved blocks of wood. Opaque, like black pools in darkened caves.
他达明，如狐狸过水；机警，如战场上的将军；和善，如主妇款待客人；简单，呆若木鸡；混沌，如深渊之水。

Who can tell the secrets of their hearts and minds?
谁能道尽他们的所有？

The answer exists only in the Tao.
答案仅存于道。

2.2

Grand Master Turing once dreamed that he was a machine. When he awoke he exclaimed:
超级大师图灵曾梦见自己是一台机器，醒后他这样回忆：

"I don't know whether I am Turing dreaming that I am a machine, or a machine dreaming that I am Turing!"

“我不知道是图灵梦见自己变成机器还是机器梦见自己变成图灵。”

2.3

A programmer from a very large computer company went to a software conference and then returned to report to his manager, saying: "What sort of programmers work for other companies? They behaved badly and were unconcerned with appearances. Their hair was long and unkempt and their clothes were wrinkled and old. They crashed out hospitality suites and they made rude noises during my presentation."

一个大公司的程序员参加一个软件会议后向他的主管汇报：“那些别的公司的程序员都是些什么样的人呀？他们举止不雅，不修边幅，头发蓬乱，衣服破旧，根本不热情好客，还在我说话的时候乱嚷嚷。”

The manager said: "I should have never sent you to the conference. Those programmers live beyond the physical world. They consider life absurd, an accidental coincidence. They come and go without knowing limitations. Without a care, they live only for their programs. Why should they bother with social conventions?"

他的主管说：“我不应该让你参加这次会议，这些程序员生活在现实世界之外。他们认为生活是可笑的，一场意外的偶然而已。他们来去自由，无所牵挂，他们只为他们的程序生活。为什么要用世俗的烦扰去扰乱他们呢？”

"They are alive within the Tao."

“他们生活在道中”。

2.4

A novice asked the Master: "Here is a programmer that never designs, documents, or tests his programs. Yet all who know him consider him one of the best programmers in the world. Why is this?"

一个初学者问主管经理：“有一个程序员，他从来不预先设计，也不写文档，甚至不测试他的程序，但是知道他的人都认为他是世界上最伟大的程序员，为什么呢？”

The Master replies: "That programmer has mastered the Tao. He has gone beyond the need for design; he does not become angry when the system crashes, but accepts the universe without concern. He has gone beyond the need for documentation; he no longer cares if anyone else sees his code. He has gone beyond the need for testing; each of his programs are perfect within themselves, serene and elegant, their purpose self-evident. Truly, he has entered the mystery of the Tao."

经理说：“那个程序员掌握了道。他不需要预先进行设计；系统崩溃时他也从不烦躁，只是接受发生的一切而不管发生的事是好是坏。他不需要写文档，他从不顾及有没有人看他写的代码。他也不需要进行测试；他写的每个程序都有一个完美的自我，平静而优雅，它们的目的不言自明。他已经真正掌握了道的精髓。”

Thus spake the master programmer:

编程大师如是说:

"When program is being tested, it is too late to make design changes."

“程序被测试时再去改变它的设计已经太晚了。”

3.1

There once was a man who went to a computer trade show. Each day as he entered, the man told the guard at the door:

曾经有一个人参加计算机展览，每天他进门时都对门卫说:

"I am a great thief, renowned for my feats of shoplifting. Be forewarned, for this trade show shall not escape unplundered."

“先警告你，我是偷盗高手，我入室偷盗的本领闻名遐迩。这次展览会也再劫难逃。”

This speech disturbed the guard greatly, because there were millions of dollars of computer equipment inside, so he watched the man carefully. But the man merely wandered from booth to booth, humming quietly to himself.

警卫因此大动干戈，因为里面有价值百万的计算机设备，所以他牢牢盯紧了这个人，但是这个人只是从一个摊位逛到另一个摊位，一边平静地喃喃自语。

When the man left, the guard took him aside and searched his clothes, but nothing was to be found.

当这个人离开时，警卫搜了他的身，但是什么也没有发现。

On the next day of the trade show, the man returned and chided the guard saying: "I escaped with a vast booty yesterday, but today will be even better." So the guard watched him ever more closely, but to no avail.

展览会的第二天，这个人又对警卫说：“昨天我满载而归，但是今天我会收获更大。”所以警卫更加小心地盯紧他，但是这样做完全于事无补。

On the final day of the trade show, the guard could restrain his curiosity no longer. "Sir Thief," he said, "I am so perplexed, I cannot live in peace. Please enlighten me. What is it that you are stealing?"

展览会的最后一天，警卫再也不能忍住他的好奇心了。“小偷先生，”他说，“你说我惊慌不安，请告诉我，你到底偷了什么？”

The man smiled. "I am stealing ideas," he said.

这个人笑笑说：“我在偷想法。”

3.2

There once was a master programmer who wrote unstructured programs. A novice programmer, seeking to imitate him, also began to write unstructured programs. When the novice asked the master to evaluate his progress, the master criticized him for writing unstructured programs, saying: "What is appropriate for the master is not appropriate for the novice. You must understand the Tao before transcending structure."

有一位编程大师，他写非结构化的程序，一位初学者刻意模仿他，也写非结构化的程序。当他让大师看他的进步时，大师批评了他的非结构化程序：“对一位编程大师合适的东西未必对一个初学者同样合适，在超越结构化之前，你必须理解编程之道。”

3.3

There was once a programmer who was attached to the court of the warlord of Wu. The warlord asked the programmer: "Which is easier to design: an accounting package or an operating system?"

有人问一位程序员，“一个财务软件和一个操作系统哪个更容易设计？”

"An operating system," replied the programmer.
“是操作系统”，这位程序员回答说。

The warlord uttered an exclamation of disbelief. "Surely an accounting package is trivial next to the complexity of an operating system," he said.
此人大惑不解。他说：“显然一个财务软件比起操作系统来说其复杂性是微不足道的”。

"Not so," said the programmer, "when designing an accounting package, the programmer operates as a mediator between people having different ideas: how it must operate, how its reports must appear, and how it must conform to the tax laws. By contrast, an operating system is not limited by outside appearances. When designing an operating system, the programmer seeks the simplest harmony between machine and ideas. This is why an operating system is easier to design."
程序员说：“不，设计财务软件时，一个程序员必须成为持不同意见的用户与计算机的一个中介，他必须了解用户的操作习惯，报表要是什么形式，如何遵循税法。相反，一个操作系统完全与这些外部的东西无关。设计操作系统，程序员只需要达到自己的设想与机器之间的简单的和谐。这就是为什么操作系统反而比财务软件更容易设计。”

The warlord of Wu nodded and smiled. "That is all good and well, but which is easier to debug?"
这些人笑着说。“不错，但是哪一个更容易调试呢？”

The programmer made no reply.
程序员没有回答。

3.4

A manager went to the master programmer and showed him the requirements document for a new application. The manager asked the master: "How long will it take to design this system if I assign five programmers to it?"
一个项目经理带给编程大师一个项目的需求，然后问大师：“如果我给你5个程序员，要多少时间设计这个项目？”

"It will take one year," said the master promptly.
“一年”，大师说。

"But we need this system immediately or even sooner! How long will it take if I assign ten programmers to it?"
“但是我们等不了那么长时间，越快越好，如果10程序员呢？”

The master programmer frowned. "In that case, it will take two years."
大师皱了一下眉头说：“那就要花2年”。

"And what if I assign a hundred programmers to it?"
“那，100程序员呢？”

The master programmer shrugged. "Then the design will never be completed," he said.
大师耸了耸肩说：“那这个项目就永远完不成了。”

Coding
Book Four
第四篇 编码

Thus spake the master programmer:
编程大师如是说：

"A well-written program is its own heaven; a poorly-written program is its own hell."
“写的好的程序是它自己的天堂，写的不好的程序是它自己的地狱”

4.1

A program should be light and agile, its subroutines connected like a strings of pearls. The spirit and intent of the program should be retained throughout. There should be neither too little nor too much, neither needless loops nor useless variables, neither lack of structure nor overwhelming rigidity.

一个程序应该是轻灵自由的，它的子过程就象串在一根线上的珍珠。自始至终，目标明确。增之一字节则太长，减之一字节则太短。既没有不必要的循环也没有没有被引用的变量，既不缺少结构化也不至于僵硬呆板。

A program should follow the Law of Least Astonishment. What is this law? It is simply that the program should always respond to the user in the way that astonishes him least.

一个程序应该遵循"最小惊讶原则"，什么是"最小惊讶原则"？就是说一个程序应该最小程度地引起用户的惊讶。

A program, no matter how complex, should act as a single unit. The program should be directed by the logic within rather than by outward appearances.

无论一个程序无论有多么复杂都应该是一个单一的整体。程序是被它的内部逻辑所指引而不是它的外观表现。

If the program fails in these requirements, it will be in a state of disorder and confusion. The only way to correct this is to rewrite the program.

如果一个程序不能满足所要的需求，它就会处于混乱无序的状态中。唯一的出路就是重写这个程序。

4.2

A novice asked the master: "I have a program that sometimes runs and sometimes aborts. I have followed the rules of programming, yet I am totally baffled. What is the reason for this?"

一个初学者问大师：“我的一个程序有时正常有时不正常。我已经完全遵循编程的规则，而且我完全被它弄糊涂了，到底是什么原因会导致这样呢？”

The master replied: "You are confused because you do not understand the Tao. Only a fool expects rational behavior from his fellow humans. Why do you expect it from a machine that humans have constructed? Computers simulate determinism; only the Tao is perfect.

大师说：“你困惑是因为你不了解道。只有傻瓜才会相信只要遵循别人所说就能得到想当然的结果。为什么你要从一个人类自己构造的机器中去得到想当然的结果呢？计算机只是决定论的产物；只有道才是唯一完美的。

The rules of programming are transitory; only the Tao is eternal. Therefore you must contemplate the Tao before you receive enlightenment.

任何编程的规则都只适合于特定的情况，只有道才是永恒不变的。所以在你受到指引之前要先去思考道。

"But how will I know when I have received enlightenment?" asked the novice.
“但是我怎么知道我何时受到指引呢？”

"Your program will then run correctly," replied the master.
“当你的程序正确运行时”。大师说。

4.3

A master was explaining the nature of the Tao to one of his novices, "The Tao is embodied in all software -- regardless of how insignificant," said the master.

初学者请大师解释“道法自然”。大师说：“道存在于任何软件中——无论是多么没有意义的软件”。

"Is the Tao in a hand-held calculator?" asked the novice.
“难道也存在于手持式的计算器里？”，初学者问。

"It is," came the reply.
“是的，”

"Is the Tao in a video game?" continued the novice.
“也在游戏机里？”，初学者又问到。

"It is even in a video game," said the master.
“是的，甚至也存在于游戏机里”。大师说。

"And is the Tao in the DOS for a personal computer?"
“也存在于个人计算机的DOS里吗？”

The master coughed and shifted his position slightly. "The lesson is over for today," he said.
大师咳嗽了一声，稍微动了一下，说，“今天的课就到这里”。

4.4

Price Wang's programmer was coding software. His fingers danced upon the keyboard. The program compiled without an error message, and the program ran like a gentle wind.

编程大师编写软件时，手指在键盘上快速飞舞。程序编译时没有一条错误信息，程序运行起来就象一阵微风吹过。

Excellent!" the Price exclaimed, "Your technique is flawless!"
太精彩了！你的技巧已经无可挑剔了。

"Technique?" said the programmer, turning from his terminal, "What I follow is the Tao -- beyond all technique. When I first began to program I would see before me the whole program in one mass. After three years I no longer saw this mass. Instead, I used subroutines. But now I see nothing. My whole being exists in a formless void. My senses are idle. My spirit, free to work without a plan, follows its own instinct. In short, my program writes itself. True, sometimes there are difficult problems. I see them coming, I slow down, I watch silently. Then I change a single line of code and the difficulties vanish like puffs of idle smoke. I then compile the program. I sit still and let the joy of the work fill my being. I close my eyes for a moment and then log off."

“技巧？”，大师转过身说，“我所遵循的是道--它超乎所有的技巧。当我开始编程时我看到的是整个一大块的程序，三年后我看到的是子过程。现在我什么也看不到了。我的整个存在是没有任何形式的虚无。我感觉很悠闲，总之，事实上是我的程序自己在写，有时我看到一些问题，

我看到它们，就停下来静静地观察它们，然后我改变了一行代码，难题就象一阵轻烟一样化为乌有。然后我编译程序。坐在那里享受工作的喜悦。闭了一会眼睛然后退出系统。

Price Wang said, "Would that all of my programmers were as wise!"
“什么时候我的程序员才能都达到这样的境界!”

Maintenance
Book Five
第五篇 维护

Thus spake the master programmer:
编程大师如是说:
"Though a program be but three lines long, someday it will have to be maintained."
“即使一个程序只有三行长，也总有一天需要去维护它”

5.1
A well-used door needs no oil on its hinges.
A swift-flowing stream does not grow stagnant.
Neither sound nor thoughts can travel through a vacuum.
Software rots if not used.

经常使用的门不需要往门轴里上油。
流动的东西就不会停滞不前。
流水不腐，户枢不蠹。--王磊
声音和思想都不能在真空中传播。
软件不用就会腐朽。

These are great mysteries.

5.2
A manager asked a programmer how long it would take him to finish the program on which he was working. "I will be finished tomorrow," the programmer promptly replied.
经理问程序员要多长时间才能完成他的项目。“明天”

"I think you are being unrealistic," said the manager. "Truthfully, how long will it take?"
“太不着边际了，老实说，要多久？”

The programmer thought for a moment. "I have some features that I wish to add. This will take at least two weeks," he finally said.
程序员想了一想说。“还有一些新的功能要加进去，可能至少要两个星期吧。”

"Even that is too much to expect," insisted the manager, "I will be satisfied if you simply tell me when the program is complete."
“即使两个星期恐怕也太夸张了，什么时候你只要告诉我说程序已经完成就好了。”

The programmer agreed to this.

Several years slated, the manager retired. On the way to his retirement lunch, he discovered the programmer asleep at his terminal. He had been programming all night.

几年后，这个经理已经退休了，在他的离职午餐上，他发现这些程序员在他的终端前睡着了，他整夜都在编程。

5.3

A novice programmer was once assigned to code a simple financial package.

一个初学者被要求编写一个财务软件。

The novice worked furiously for many days, but when his master reviewed his program, he discovered that it contained a screen editor, a set of generalized graphics routines, and artificial intelligence interface, but not the slightest mention of anything financial.

他疯狂地工作了很多天，但他的主管检视他的程序时发现，它写了一个编辑器，一个图形程序集，和人工智能的界面，但是看不到任何跟财务有关的东西。

When the master asked about this, the novice became indignant. "Don't be so impatient," he said, "I'll put the financial stuff in eventually."

主管要求解释时，程序员被激怒了：“你太没耐心了，我会在最后写财务的部分。”

5.4

Does a good farmer neglect a crop he has planted?

Does a good teacher overlook even the most humble student?

Does a good father allow a single child to starve?

Does a good programmer refuse to maintain his code?

一个好的农民不会不管他的庄稼。

一个好的老师不会不管哪怕是最差的学生。

一个好的父亲不会让他的任何一个孩子挨饿。

一个好的程序员不应拒绝维护他的程序。

Management

Book Six

第六篇 管理

Thus spake the master programmer:

编程大师如是说：

"Let the programmer be many and the managers few -- then all will be productive."

“增加程序员，减少经理--这样他们都可提高效率。”

6.1

When managers hold endless meetings, the programmers write games. When accountants talk of quarterly profits, the development budget is about to be cut. When senior scientists talk blue sky, the clouds are about to roll in.

经理们忙于无休无止的会议时，程序员们在写游戏。财务主管在谈论季度盈利时开发预算将会被削减。当老科学家在谈天空的蓝色时，云团蜂拥而至。

Truly, this is not the Tao of Programming.
这不是编程之道。

When managers make commitments, game programs are ignored. When accountants make long-range plans, harmony and order are about to be restored. When senior scientists address the problems at hand, the problems will soon be solved.

经理分配任务时不会包括游戏，会计师做长期计划时，应该做到面面俱到，皆大欢喜。科学家提出一个问题，就会很快得到解决。

Truly, this is the Tao of Programming.
这才是编程之道。

6.2

Why are programmers non-productive? Because their time is wasted in meetings.
为什么程序员没有效率，因为他们把时间都浪费在开会上了。

Why are programmers rebellious? Because the management interferes too much.
为什么程序员难于管理？因为管理者的干预太多了。

Why are the programmers resigning one by one? Because they are burnt out.
为什么程序员一个接一个地辞职，因为他们累坏了。

Having worked for poor management, they no longer value their jobs.
在糟糕的管理下工作，他们享受不到工作的乐趣。

6.3

A manager was about to be fired, but a programmer who worked for him invented a new program that became popular and sold well. As a result, the manager retained his job.

一个经理将被解雇，但他手下的一个程序员写了一个流行的软件并且销路很旺。所以经理保住了他的工作。

The manager tried to give the programmer a bonus, but the programmer refused it, saying, "I wrote the program because I thought it was an interesting concept, and thus I expect no reward."

经理为程序员分红，但程序员拒绝了，他说：“我写程序是因为写程序很有趣，所以我并没想过得资金”。

The manager, upon hearing this, remarked, "This programmer, though he holds a position of small esteem, understands well the proper duty of an employee. Lets promote him to the exalted position of management consultant!"

这位经理说，“这位程序员，不管他现在是什么位置，他都能理解一个雇员的职责所在。我们要把他提升为管理顾问”。

But when told this, the programmer once more refused, saying, "I exist so that I can program. If I were promoted, I would do nothing but waste everyone's time. Can I go now? I have a program that I'm working on."

这位程序员又一次拒绝了，他说：“我是一个程序员所以我可以编程，如果我被提升了，除了浪费别人的时间什么也做不了，现在我可以走了吗？我还有一个程序没写完。”

6.4

A manager went to his programmers and told them: "As regards to your work hours: you are going to have to come in at nine in the morning and leave at five in the afternoon." At this, all of them became angry and several resigned on the spot.

经理对程序员说，“你们的工作时间是早上9点到正午点。”，所有的程序员都很不满。

So the manager said: "All right, in that case you may set your own working hours, as long as you finish your projects on schedule." The programmers, now satisfied, began to come in a noon and work to the wee hours of the morning.

经理又说：“好吧，那随你们的便，只要能按时完成任务。”，程序员们这下满意了，他们中午上班，一直工作到凌晨。

Corporate Wisdom

Book Seven

第七篇 公司里的学问

Thus spake the master programmer:

编程大师如是说：

"You can demonstrate a program for a corporate executive, but you can't make him computer literate."

“你可以向一位公司主管演示一套程序，但你不能让他的电脑变得象人一样。”

7.1

A novice asked the master: "In the east there is a great tree-structure that men call 'Corporate Headquarters'. It is bloated out of shape with vice-presidents and accountants. It issues a multitude of memos, each saying 'Go, Hence!' or 'Go, Hither!' and nobody knows what is meant. Every year new names are put onto the branches, but all to no avail. How can such an unnatural entity exist?"

一个新学问大师：“在东方，有一个庞大的机构，人们称作总部。它由为数众多的大小领导。每天发出大量的备忘录，每个备忘录都说：‘干这个，干那个’，没有一个人知道它是什么意思。每年这个机构都会有更多的人加进来而变得越来越大，但是去没有人去做事情。怎么会让奇怪的东西还能存在呢？”

The master replies: "You perceive this immense structure and are disturbed that it has no rational purpose. Can you not take amusement from its endless gyrations? Do you not enjoy the untroubled ease of programming beneath its sheltering branches? Why are you bothered by its uselessness?"

大师说：“你已经知道这个巨大的机构并不合理，你就不能不管它为什么这样吗？你尽管享受它的好处就是了，干吗要去管它到底是没有效率呢？”

7.2

In the east there is a shark which is larger than all other fish. It changes into a bird whose wings are like clouds filling the sky. When this bird moves across the land, it brings a message from Corporate Headquarters. This message it drops into the midst of the programmers, like a seagull making its mark upon the beach. Then the bird mounts on the wind and, with the blue sky at its back, returns home.

在遥远的东方，传说有一只巨大的鱼，叫鲲，它变成了一只大鸟，叫鹏，鹏的翅膀可以遮天蔽日，这只大鸟经过陆地的时候，它带来了一个消息，它把这个消息丢在程序员中，就象一只海鸥在海滩上做的记号，然后鹏背负蓝天，乘风而上，回家去了。

The novice programmer stares in wonder at the bird, for he understands it not. The average programmer dreads the coming of the bird, for he fears its message. The master programmer continues to work at his terminal, for he does not know that the bird has come and gone.

初学者惊恐地看着这只鸟，根本不敢相信，中级程序员担心这只鸟的到来，因为它害怕它带来的消息，编程大师则继续在他的终端前工作他根本不知道这只鸟曾经来过。

7.3

The Magician of the Ivory Tower brought his latest invention for the master programmer to examine. The magician wheeled a large black box into the master's office while the master waited in silence.

一个学究带着他的最新发明去见编程大师，他把一个大黑盒子推进大师的办公室。

"This is an integrated, distributed, general-purpose workstation," began the magician, "ergonomically designed with a proprietary operating system, sixth generation languages, and multiple state of the art user interfaces. It took my assistants several hundred man years to construct. Is it not amazing?"

“这是综合的、分布式的通用工作站，”，学究开始介绍了，“按人体工学设计的操作系统，第六代的高级语言，多样的用户界面，整整花了我的助手好几百人年的时间，挺不错吧？”

The master raised his eyebrows slightly. "It is indeed amazing," he said.

大师扬了一下眉毛，说：“的确很了不起。”

"Corporate Headquarters has commanded," continued the magician, "that everyone use this workstation as a platform for new programs. Do you agree to this?"

“头儿已经说了，”这位学究继续说，“每个人都要用这个工作站作平台，你觉得怎么样？”

"Certainly," replied the master, "I will have it transported to the data center immediately!" And the magician returned to his tower, well pleased.

“当然了，”，大师回答说，“我要马上把它送到数据中心去！”，这位学究满意地回去了。

Several days later, a novice wandered into the office of the master programmer and said, "I cannot find the listing for my new program. Do you know where it might be?"

几天后，一个新手走进大师的办公室说，“我找不到我新写的程序了，你知道它可能会在哪儿吗？”

"Yes," replied the master, "the listings are stacked on the platform in the data center."

“当然，”，大师说，“你的程序在数据中心的平台里放着。”

7.4

The master programmer moves from program to program without fear. No change in management can harm him. He will not be fired, even if the project is canceled. Why is this? He is filled with the Tao.

编程大师从一个项目转到另一个项目而毫无顾虑，任何管理上的变动都不能影响他，他不会解雇，即使项目被取消了。为什么呢？他了解了道。

Hardware and Software

Book Eight

第八篇 硬件和软件

Thus spake the master programmer:

编程大师如是说：

"Without the wind, the grass does not move.

Without software, hardware is useless."

风不动则草不动，

没有软件，硬件只是一堆发热的电子器件

8.1

A novice asked the master: "I perceive that one computer company is much larger than all others. It towers above its competition like a giant among dwarfs. Any one of its divisions could comprise an entire business. Why is this so?"

一个初学者问编程大师：“我知道有一家计算机公司比所有其它的公司都大。在它面前它的竞争对手就象站在巨人面前的侏儒。它的任一部门都有各自的业务，为什么会这样呢？”

The master replied, "Why do you ask such foolish questions? That company is large because it is so large. If it only made hardware, nobody would buy it. If it only maintained systems, people would treat it like a servant. But because it combines all of these things, people think it one of the gods! By not seeking to strive, it conquers without effort."

大师说，“为什么你问如此愚蠢的问题呢？那家公司大是因为它就是如此之大，如果它只做硬件，就没有人会买，如果它只维护系统，人们只会把它当作仆人，但是它的业务囊括了所有这些东西，人们就对它顶礼莫拜好象不用努力奋斗就可击败竞争对手。”

8.2

A master programmer passed a novice programmer one day. The master noted the novice's preoccupation with a hand-held computer game. "Excuse me", he said, "may I examine it?"

有一天编程大师碰见了一个正玩掌上游戏机的编程新手，他说：“给我看一下？”

The novice bolted to attention and handed the device to the master. "I see that the device claims to have three levels of play: Easy, Medium, and Hard", said the master. "Yet every such device has another level of play, where the device seeks not to conquer the human, nor to be conquered by the human."

新手把游戏机递给大师，“我看到上面说明了三种难度的玩法：容易，中等，高难”，大师说，“但是每个这样的游戏机都有另外一种玩法，此时游戏机即不是想着怎么赢你，也不是怎么被你赢。”

"Pray, great master," implored the novice, "how does one find this mysterious setting?"

“那么请问大师”，初学者说，“这种玩法到底是怎样玩的呢？”

The master dropped the device to the ground and crushed it under foot. And suddenly the novice was enlightened.

大师把游戏机摔到地下然后用脚踩碎它，突然初学者明白了。

8.3

There was once a programmer who worked upon microprocessors. "Look at how well off I am here," he said to a mainframe programmer who came to visit, "I have my own operating system and file storage device. I do not have to share my resources with anyone. The software is self-consistent and easy-to-use. Why do you not quit your present job and join me here?"

有一个工作在微机上的程序员对前来参观的大型机程序员说：“看看我这里吧，我有自己的操作系统和文件存储设备，我不需要与别人共享任何资源，软件条条有理并且易于操作。为什么你不辞去你的工作到这里来呢？”

The mainframe programmer then began to describe his system to his friend, saying: "The mainframe sits like an ancient sage meditating in the midst of the data center. Its disk drives lie end-to-end like a

great ocean of machinery. The software is a multi-faceted as a diamond and as convoluted as a primeval jungle. The programs, each unique, move through the system like a swift-flowing river. That is why I am happy where I am."

大型机的程序员对他的朋友说：“大型机就象古代圣贤一样深思熟虑，它的磁盘设备从头到尾就象是一个巨大的机械设备的海洋。软件象钻石一样有多个面，象远古的森林一样令人费解。每一个程序都象水经过河流一样穿行于系统中，那就是为什么我乐于为它工作”

The microcomputer programmer, upon hearing this, fell silent. But the two programmers remained friends until the end of their days.

微机程序员听了这些话后，默默不语，但这两个程序员至死都是很好的朋友

8.4

Hardware met Software on the road to Changtse. Software said: "You are the Yin and I am the Yang. If we travel together we will become famous and earn vast sums of money." And so the pair set forth together, thinking to conquer the world.

硬件和软件在路上碰见了，软件说：“你是阴我是阳，如果我们联手就可以赚大钱。”所以它们走到了一直，考虑怎样征服世界。

Presently, they met Firmware, who was dressed in tattered rags, and hobbled along propped on a thorny stick. Firmware said to them: "The Tao lies beyond Yin and Yang. It is silent and still as a pool of water. It does not seek fame, therefore nobody knows its presence. It does not seeks fortune, for it is complete within itself. It exists beyond space and time."

不久，它们遇到了固件，固件衣衫褴褛，拄着一根拐棍步履蹒跚。固件对它们说：“道在于阴阳之外。它静如止水，它从不指望能扬名远近，所以没有人知道它的存在。它也不寻求幸福，它只是与它自己的存在在一起，它存在于空间和时间之外。”

Software and Hardware, ashamed, returned to their homes.

软件和硬件面有惭色，各自回了家。

Epilogue Book Nine 第九篇 尾声

Thus spake the master programmer:
编程大师如是说：

"Time for you to leave."
“现在是你出师的时候了。”