

21世纪科技新视野丛书  
New Horizons in The 21st Century's Science & Technology

(英汉对照读物)

◆丛书主编 吴文智 徐 新

# THE FUTURE Internet

# 未来网络世界

◆ 洪 雷 章丽君 编 译

煤炭工业出版社



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## 序

人类社会进入 21 世纪的今天,科学技术日新月异的发展速度真正地到了匪夷所思的程度。那些在过去常常被人们认为不可能的梦想,今天大多成了事实。如果将来有一天你突然发现汽车可以像飞机一样在大街小巷穿梭飞行,或当你在某个餐厅就餐时竟然发现你对面就坐着一个与你百分之百相象的你,请不要吃惊,因为这正是现代科学技术创造的结果。

科学探索是一项伟大的冒险活动,充满了刺激与振奋。它使人类的求知欲和好奇心得到满足,并且益发地激起人们愈来愈大的想像力,去欣赏和理解科学技术所带来的种种美妙与神奇。e 时代的到来更使人们对知识的力量不再有丝毫的怀疑,唯有对科学知识的需求更多地增添了紧迫感。“让科学知识为我们插上腾飞的双翅”成了我们绝大多数人潜意识的追求,正是在这样一种背景下,我们构想了这套《21 世纪科技新视野》丛书。意欲从浩瀚的科学海洋中撷取那些对我们明天的开拓进取富有启迪意义的新知识,奉献给一切热爱学习,热爱科学的人们。

《21 世纪科技新视野》是一套以英汉对照方式编排的“语言学习+科技知识”的“链接”式丛书。在编写过程中,所有参编者遵照“应用价值、文化价值、精神价值”相结合的原则精心选择每篇文章,努力把最能体现人类创造力与想像力的科学成果介绍给广大读者,所有原文均摘自英语国家的现版期刊或网络杂志。英文地道,原汁原味。内容讲求知识性、趣味性、通俗性、新颖性,

使得广大英语爱好者在学习英语的同时可以接受新科学知识的熏陶，也使那些钟爱新科学知识的人们在掌握新知识的同时得以强化和提高自己的英语水准，特别是与这个时代特点相融合的那些“与时俱进”的科技英语水准。这在加入 WTO 后的今天尤为重要，因为 WTO 已不容置疑地把每一个中国人深深地卷入到了全球一体化发展的新浪潮中。作为链接未来科学技术的知识纽带——《21 世纪科技新视野》丛书，将把我们与新科学和新知识紧紧地联接在一起，从而为广大读者打造出一个再次提升自己的知识平台，以便可以从容应对 WTO 时代扑面而来的任何挑战。

如果本丛书的出版发行确能使读者对我们的上述编写意图认同十之一二，那就是对我们所有编写人员的莫大奖赏。此外，本书得以顺利出版，除了我们所有编写人员的努力外，还折射了煤炭工业出版社决策者的创新意识和与时俱进的奋发精神，渗透了本丛书责任编辑的辛勤汗水。在此一并表示感谢。

对于书中可能存在的不足之处，我们将在下次再版时改进，敬请广大读者批评指正。

《21 世纪科技新视野》丛书编委会

2002 年元旦于南京

# CONTENTS

## 目 录

Is It Real or Is It Virtual? .....	2
若真若幻	
E-maladies .....	10
电子邮件的弊病	
Everything You Need to Shop Smart online .....	16
在网上潇洒购物	
The Absent Professor .....	32
虚拟教授	
A Magical History Tour .....	38
奇妙的历史旅行	
God on the Net: Faith in Cyberspace .....	44
网络里的上帝:电脑空间的宗教信仰	
Future Tech: Virtual Reality .....	52
未来技术:虚拟现实	
Virtual Medicine, Real Benefits? .....	62
虚拟医学,果真大有裨益吗?	
Online vs. Traditional Banking .....	72
网上银行和传统银行业之对比	
Coming soon, Internet's First 'Synthespian' .....	80
虚拟主持人	

The Art of Surfing .....	94
冲浪艺术	
Smart Companies Are Exploiting Cyberspace to Spark Innovation .....	100
聪明的公司正在利用网络启发创新	
All Changes for the E-lance Economy .....	108
电子自由职业经济所带来的巨变	
Web Community .....	120
互联网村庄	
The Internet Economy .....	128
因特网经济	





*With a lab-full of new technologies and protocols, the Internet is likely to overcome its current drawbacks and continue its march into every corner of modern life.*

拥有大量正处于实验阶段的新技术和网络协议的因特网很可能克服目前的缺点，并且继续进军现代生活的每一个角落。



## Is It Real or Is It Virtual?

On the set of VH-1 game show *My Generation*, host Craig Shoemaker and four contestants stand in a small, single-level studio, the empty walls behind them painted a near-flourescent green, and the day's game topics \*listed on<sup>1</sup> a makeshift wooden board.

But viewers see quite a different scene. The group stands in an expansive room with broad stairs \*leading up to<sup>2</sup> the stage. Around them glows a bank of luminous blue squares and a giant electronic screen displaying the show logo \*along with<sup>3</sup> a colorful, three-dimensional game board.

So what's \*going on<sup>4</sup> here?

Television's legendary ability to craft illusions is being greatly extended by a new technology that not only creates more elaborate visual effects but can save money and time in the process.

It's virtual sets, and some say it's better than the *real* thing.

Virtual set technology is \*far from<sup>5</sup> the blue screen used for weather forecasts.

It lets producers create live productions using real actors surrounded by a graphically generated, three-dimensional environment in which they can walk around objects, behind and in front of them, even cast shadows.

Virtual sets can appear large but take relatively little space for filming. Because the sets exist on computer disk, storage space isn't an

## 若真若幻

在名为“我这代人”的 VH-1 竞赛的布景中,主持人克雷格·舒美克和四位参赛者站在一个狭小的单级演播室里,他们身后空荡荡的墙壁刷上了近似荧光的绿色涂料,当天的竞赛题目列在一块临时将就的木板上。

但观众们所看到的却截然不同。这些人站在开阔的房间里,宽敞的楼梯通向舞台。在他们周围闪耀着一排明亮的蓝色方块,巨大的电子屏幕上显示着节目标识语,三维竞赛板五彩斑斓。

这究竟是怎么回事呢?

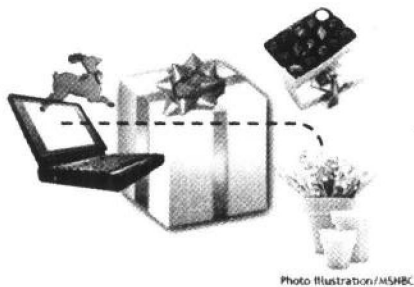
电视制作幻像的非凡能力在一种新技术的协助下得到极大的延伸,不仅能制造出更多精致的视觉效果,而且在拍摄过程中省钱省时。

这就是虚拟布景,有人说它比实景更好。

虚拟布景技术远非用来进行天气预报的蓝色屏幕。

它让制作者们创造出活生生的产品,真实演员被包围在一个由图表生成的三维环境中,他们可以围绕物体前后走动,甚至能投下影子。

虚拟布景可以显得很大,但摄影时所占空间相对较小。因为布



1. list on: 记在……上
2. lead up to: 向上一直通往……
3. along with: 连同……一起; 随同……一起; 与……一道
4. go on: 发生; 进行
5. far from: 远非, 远远不; 完全不



issue, and a set can be changed in seconds, freeing studio space for multiple productions.

The potential financial benefits are also great, although complicated by a range of production factors.

Says Gregory Petroff, director of creative services for Studio DVP, the Hollywood, Calif. -based firm that created the set for *My Generation*, "The economics of virtual set technology \* is partly related to<sup>6</sup> whether you have to strike your set. "

Hard sets, the ones that exist in the real world, \* add costs to<sup>7</sup> a show when they are used in a shared studio because they take time to dismantle and set up.

\* By contrast<sup>8</sup>, it takes only seconds to change sets in the virtual realm, and no physical space to store them is needed because they \* reside in<sup>9</sup> computer data bases.

And while creating a high-end hard set can cost \$250,000 to \$500,000, comparable virtual sets generally cost one-third the price. Scott Lelieur, Studio DVP's creative director, say, "The design fees are identical, it's the construction that is hugely different. "

Meanwhile, the hardware for creating virtual set systems can cost as little as \$100,000 — or as much as \$500,000. But once a station or a production company owns such a system, the cost of creating individual sets decreases dramatically.

Cost and convenience are not virtual sets' only benefits. For instance, the VH-1 set for *My Generation* cost more than \$75,000 to build, much the same as the producers would have spent for a hard set. But, notes Petroff, "The set they would have built would have looked



景存在于电脑磁盘中,贮存空间不成问题,场景变换片刻即可完成,演播室的空间得以解放出来进行多次操作生产。

潜在的经济效益也是很大的,尽管由于一系列生产因素的影响而较为复杂。

格雷戈里·派特洛夫是 DVP 演播公司创造性服务的负责人,该公司位于加州好莱坞,为“我这代人”制作场景。他说,“虚拟布景技术的经济性在某种程度上涉及到你是否非得敲掉你的布景。”

在一个共用的演播室里使用真实存在的固定布景会增加节目成本,因为拆装需要花时间。

相反,在虚拟领域里改换场景只要几秒钟,而且存放不会占用物质空间,因为他们呆在计算机的数据库里。

制作一套高价固定布景要花费 25 ~ 50 万美元,而相应的虚拟布景通常只需此价格的 1/3。DVP 演播公司的创作导演斯科特·雷利尔说:“设计费是一样的,大相径庭的是布景的建造。”

与此同时,制作虚拟布景系统的硬件成本可能仅需 10 万美元,也可能高达 50 万美元。不过一旦某家电视台或者制片公司拥有了这样一套系统,那么,单个布景的制作费用就明显减少了。

低成本和高便利并不是虚拟布景仅有的好处。例如,“我这代人”的 VH-1 布景花了 7.5 万美元建造,所花的费用和制作固定布

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6. be related to: 涉及;与……有关;与……相关

7. add...to: 增加

8. by contrast: 相反

9. reside in: 居住



very small, and the game board would have been very simple. Whereas the set we built looked enormous, and the game board was three-dimensional." Adds Lelieur, "You can produce something that looks much more expensive than what it really cost you to make it."

Virtual set technology was not always so effective. Early forays were cartoonish-looking and obviously fake. The U. S. television industry initially rejected its use for serious programs. But in other parts of the world — South America and Europe, for example — the technology found a niche in the mid-1990s.

Now, virtual sets have found a foothold in the States. Says Petroff, "For the U. S. market, for the quality to be acceptable, you needed mature tracking technology, mature hardware, mature software and mature know-how."

\*Now that<sup>10</sup> the technology has matured, it's being seen in a wide variety of news and sports programs, which have a greater need for graphic content. Children's programming and game shows are likely candidates for the technology.

Studio DVP's Lelieur sees another possible use. "There's also an opportunity to create something that could never exist \*in reality<sup>11</sup>," he says.

One of the company's current projects involves creating a surreal, almost gothic virtual environment for an Internet client. "It doesn't look real," Lelieur says. "but it's a place you'd want to go."

Concludes Petroff infers, "Most people will say it's the wave of the future. They're just not sure if the future is here."

Just as virtual set technology allows producers to put television



景差不多。但是派特洛夫指出：“他们要是做固定布景，看起来就很狭窄，竞赛板也会很简陋。而我们制作的场景看上去很开阔，竞赛板也是立体的。”雷利尔补充说：“你能做出比你的实际制作费用看起来更昂贵的东西。”

虚拟布景技术以前并没有如此效果。早期的袭击场景看上去像卡通画，假得很明显。美国电视业起初反对把它用在严肃节目中。但其它一些地区——例如南美和欧洲——这项技术在 20 世纪 90 年代中叶得以物尽其用。

如今，虚拟布景在美国已经建立了巩固的地位。派特洛夫说：“要进入美国市场，要达到可被接受的质量标准，你就需要成熟的跟踪技术、成熟的硬件、成熟的软件和成熟的技能。”

既然这项技术已经成熟了，它就出现在各种各样的新闻和体育节目中，这类节目对图片式内容需求更大。儿童节目和游艺表演也很有希望用上这项技术。

DVP 演播公司的雷利尔看到了另一个可能的用途。“有机会制造出现实中永不可能存在的东西，”他说。

公司目前的一项计划是为一位网上客户制造一个超现实主义的特哥特式虚拟环境。“看上去不像真的，”雷利尔说，“但它却是你向往的地方。”

派特洛夫推断说，“多数人会说这是未来的浪潮，只是他们不能肯定未来是否已经到了。”

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10. now that: 既然

11. in reality: 在现实中，事实上



reporters \*on location<sup>12</sup> when they are in the studio, it has the capability to create a reality that doesn't exist. One could, for example, blend images to make a fake city or to add actors to a scene.

But designer John Adel of Post Effects, a virtual set design company based in Chicago, doesn't foresee misuses of the technology, arguing that "television is kind of \*by definition<sup>13</sup> dishonest. If we built a hard set, it wouldn't be a real place, either."

Besides, the technology isn't advanced enough to make it worthwhile. "If I were trying to falsify information, real-time graphics don't look good enough," he says, "There are much easier ways to do it that look more realistic."

But precisely this kind of manipulation of information is already being applied in television advertising. Using virtual-set technology, for example, producers of TV sporting events add billboard for viewers that is not displayed in the stadium or arena.

*( From www. Micro. com )*





正如虚拟布景技术可以让制片人把演播室里的电视新闻记者放到现场,它能制造出并不存在的实体。例如,你可以把一些影像混合起来,制造出一座假城,或是把演员加入某个场景中。

位于芝加哥的 PE 虚拟布景设计公司的设计师约翰·阿代尔并不认为这项技术存在被滥用的问题,他辩解道:“从定义上来讲,电视本身就有几分欺诈性。如果我们建一个固定场景,那它也并不是真正存在的地方。”

此外,这项技术还没先进到物有所值的地步。“如果我想伪造信息,实时图表看上去就不够好,”他说,“有简单得多的方法能让它看上去更真实。”

不过,这种对信息的操纵已经应用于电视广告。例如,利用虚拟布景技术,电视体育竞赛的制片人可以增加广告牌给观众看,它们并不需要陈列在体育馆或竞技场。

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12. on location: 现场

13. by definition: 根据定义