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Use of Computer in Sport: A Study

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Abstract: There's scarcely a facet of life that hasn't been impacted in some way by computers, and sports are no different. Virtually every aspect of sports – from how they're played to how they're measured, to how they're viewed – has been forever altered by the computer age. Computers have revolutionized the sports industry. Sports teams and other organizations use computers to track scores, maintain player records, create virtual playing fields, and model new sports techniques and methods. Sports equipment manufacturers use computers to design and test new equipment. Even if you don't participate in sports yourself, you may have used your computer to buy tickets to sporting events, check out sports schedules, or chat with other sports fans about the latest game.

1. Introduction

Computer science in sport is an interdisciplinary discipline that has its goal in combining the theoretical as well as practical aspects and methods of the areas of informatics and sport science. The main emphasis of the interdisciplinary is placed on the application and use of computer-based but also mathematical techniques in sport science, aiming in this way at the support and advancement of theory and practice in sports.[1] The reason why computer science has become an important partner for sport science is mainly connected with "the fact that the use of data and media, the design of models, the analysis of systems etc. increasingly requires the support of suitable tools and concepts which are developed and available in computer science".[2]

2. Storing and Watching Video

Computers are used to store and watch videos in sports. As there is a great need of videos in sports, because players watch other players playing styles from different angles to learn them through videos or they want to watch their own past performances in order remove drawbacks from them or they can watch live matches etc. Computers are used in sports each and every day. It helps sports organizations to achieve their goals.

3. Statistical Data Storage

Statistical data is very important for sports. Team players, Coaches, Public all want to know the past performance of team players. So computers can be used to record statistical data in different attractive ways.

4. Computers and the Olympics

Athletes who depend on speed to win will stop at nothing to reduce their times. Some Olympic swimmers wear full-body "skinsuits" so they can glide through the water more easily. So, it shouldn't be a surprise to hear that they use computer applications to improve their speeds. At the U.S. Olympic Training Center in Colorado, coaches use a computer application to develop perfect swimming strokes. This simulation software attempts to copy the way water flows around parts of the swimmer's body, such as the arms and hands [3]. The swimmer's goal is to move through the water as smoothly as possible. Water turbulence can slow a swimmer down.

The application allows the user to change the positions of the swimmer's hands and arms. The user can then see how these changes affect the amount of water turbulence. This information is used to design the best swimming stroke. Coaches can then teach swimmers to use this stroke to obtain their greatest speed. Simulation software has also been used to design racing yachts. It can help in determining how to shape the yacht's hull so that it moves through the water with the least amount of resistance. Computers have many other uses at the Olympics. At the 2002 Winter Games in SaltLake City, Utah, tiny computer chips were used to track skiers. A chip was strapped to each skier's ankle. Electronic devices were buried in the snow along the track. When a skier passed over one of the devices, his or his chip sent information to the device. This information included the skier's location, speed, and number. This information was sent to a central computer. Judges and other Olympic officials could then look at it[4].

5. On the Web

The information available on sports teams' Web sites is amazing. Some of it includes[5]:

• Schedules. Game dates and locations are available.

• Statistics. Up-to-the-minute information on teams and individual players is ready whenever you want it.

• Team News. Web sites contain coach and player interviews, information on injuries, and so forth.

• Ticket Purchasing. Rather than stand in line, you can purchase your tickets at home. You can even look at a diagram of the stadium to see exactly where you will be seated.

• Online Shopping. You can buy cricket bat, caps, ball, and many other items.

6. Analyzing Movement

If you ask a softball pitcher how she throws a fastball, she may not be able to tell you. She may say it's just "instinct." It's something that comes naturally to her. The fact is that there are ways to help pitchers become better pitchers and batters become better hitters. And computers are important in making this happen. Baseball players from the major leagues down to city and school teams can now have their batting and pitching analyzed. First, the player's movements are videotaped. Then, these videotaped images are transferred into a computer. Special application software analyzes the images. It measures the exact angle at which the player is holding his or her arms and legs. The speed and efficiency of each body movement is measured. This process is called motion analysis. One pitch can be compared with another. This can be useful because the pitcher can see how changes in movement affect the result (such as how fast a ball travels). Some systems can even measure pitching and hitting motions during an actual game. This allows coaches to give immediate feedback to players. These computer applications also can be used to compare the movements of two different players. These comparisons, for example, can help explain why different players tend to hit the ball in different directions. There are also computer applications that help coaches keep track of exactly where each pitch crosses the plate. A radar gun can be attached to the computer to measure a pitch's speed [6]. This information is stored in the computer so that the pitcher and coach can study it later. While motion analysis applications are important tools, it still takes a good coach to know how to interpret the results. The coach must look at the information the application provides and then use it to help the player improve.

7. Computers and Sports Training

Computers help gauge an athlete's performance during a specific training regimen. Trainers for sports teams can put a player's height; weight and body model into a computer and develop a training program that best fits her needs. Trainers can also put sensors and equipment onto a player during training, allowing the computer to register results while the player trains.

8. Equipment Development

Safety is an important aspect in professional sports today. News stories are often released about the study of concussions on football and hockey athletes. To help minimize those injuries equipment developers have used computers to develop safer equipment. For example, helmet company Riddell designed a new football helmet for the American Football League during the 2010 season after a number of players were injured by concussions [7]. They used a variety of technological programs to design a helmet that would be able to absorb the constant impact and limit damage to the head and neck area. The same type of

research is being done for such sports as hockey and auto racing to better improve the safety of the athletes.

9. Performance Analysis

Another benefit of bio-mechanical studies, in that it allows players and coaches to break down the motions of an athlete – scrutinize golf swings or batting stances, for instance, in order to maximize the player's performance [8].

10. Controlling Scoreboards

The pro sports venues of today are managed by a large array of computers which will update player stats, out-of-town scores, graphic displays, even weather forecasts in real time.

11. Bio-mechanics

By studying the movements of athletes via computerized simulators, manufacturers have been able to develop better training equipment; trainers are able to customize workout regimens for individual athletes, and sports medicine is more capable of assessing, and preventing, sports-related injuries[9].

12. Conclusion

It's hard to believe we ever managed without computers in the sports world, hen you consider that nowadays we scrutinize every nuance of an athlete's performance, and keep stats on practically everything. For the improvements they've made possible in players' performance, training; equipment, and sports medicine, computers are indeed invaluable to sports.

References

1. Daniel Link & Martin Lames (2009). "Sport Informatics – Historical Roots, Interdisciplinary and Future Developments". IJCSS Volume 8 Edition 2, 68-87.
2. Arnold Baca (2006). "Computer science in sport: an overview of history, present fields and future applications (part I)". IJCSS Special Edition 2/2006, 25-35.
3. Jürgen Perl (2006). "Computer science in sport: an overview of history, present fields and future applications (part II)". IJCSS Special Edition 2/2006, 36-46.
4. Bahadorreza Ofoghi, John Zeleznikow, Clare MacMahon, and Markus Raab (2013). "Data mining in elite sports.
5. Garcia, r. In use of computers in sports. Retrieved Jun. 26, 2013,

6. Monostra, m. In importance of computers in sports. Retrieved Jun. 26, 2013, from
7. The International Sports Engineering Association.. computer and sports .Retrieved Apr,2013
8. Wilmore JH, Costill DL. Physiology of sport and Exercise. 3rd ed. Champaign IL: Human Kinetics, 2005.
9. Kamlesh ML. UGC-NET Digest physical education. 2nd edn, 2, Khel Sahitya Kendra, New Delhi, 2012, 148-155.Ajmer Singh Dr. Essentials of Physical Education, Kalyani Publishers, New Delhi, 2007, 348-353.