

SEMINAR

TITLE: **Wireless Multimedia Architectures and Applications**

DURATION: Half day

INSTRUCTOR: Dr. Borko Furht
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DESCRIPTION:

The multimedia and Internet technologies including World Wide Web, have already created many benefits, but we can still only guess at many benefits these liberating new technologies will create in the future. Today, nations and corporations are making enormous efforts to establish a wireless infrastructure, including declaring a new wireless spectrum, building new towers, and inventing new handsets, high-speed chips, and protocols.

The goal of this tutorial is to link present "wireless realities" to the future of technology. It should bring to participants 21st century thinking today. In the first part of the tutorial we will present fundamental technologies and architectures of wireless Internet, including network technologies, generations of wireless systems (from 1G to 3G), and wireless devices.

The second part of the tutorial will focus on 3G systems that will provide data transmission speeds of several Mbps, which are needed for multimedia. We will present wireless multimedia architectures, wireless multimedia protocols, and related standards. We will also discuss wireless multimedia challenges including (a) error resilience when delivering rich digital media over wireless networks at low and varying transmission speeds, (b) adaptive decoding that will optimize digital media for mobile devices with limited processing power, (c) network access, and other. The synergy between the 3G wireless Internet and multimedia promises to bring a tremendous explosion in application possibilities. The tutorial will end with a brief discussion on future trends in Wireless Internet and multimedia.

TARGET AUDIENCE:

This tutorial is intended for system designers, engineers, and scientists who are involved in wireless Internet and multimedia systems. It is also intended to anyone interested in receiving an advanced technical training in this field. The tutorial assumes some familiarity with multimedia and Internet. Level: intermediate.

TUTORIAL OUTLINE:

1. From Wired to Wireless Internet
2. Wireless Internet Network and Access Technologies
3. Wireless Devices
4. Wireless Multimedia Architecture
5. Wireless Multimedia Protocols and Standards
6. Wireless Multimedia Challenges
7. Wireless Multimedia Applications
8. Future of Wireless Internet

TUTORIAL MATERIAL:

Class notes including copies of all slides.

Curriculum Vitae

Borko Furht is a professor and chairman of computer science and engineering at Florida Atlantic University (FAU) in Boca Raton, Florida. He is the founder and director of the Multimedia Laboratory at FAU, funded by National Science Foundation. Before joining FAU, he was a vice president of research and a senior director of development at Modcomp, a computer company of Daimler Benz, Germany, and a professor at University of Miami in Coral Gables, Florida.

His current research is in multimedia systems and Internet, video coding and compression, video databases, and wireless multimedia. He has published over 200 papers, 23 books, and holds 2 patents. Dr. Furht received research grants from national agencies such as NSF, NASA, and Federal Government, and from industrial corporations such as Motorola, IBM, General Electric, Xerox, Avocent, Datacom, and Modcomp.

Dr. Furht is a founder and editor-in-chief of the *Journal of Multimedia Tools and Applications* (Kluwer Academic Publishers). He recently completed three handbooks, to be published by the CRC Press, "*Handbook of Internet Computing*" (2000) "*Handbook of Multimedia Computing*", (1999) and "*Handbook of Internet and Multimedia Systems and Applications*" (1999). He was the Program Chairman for America for the IEEE Conference on Multimedia Systems and Computing '99 in Florence, Italy and area chairman for the IEEE Conference on Multimedia and Expo, Tokyo 2001. He is also consulting editor for the Book Series on *Multimedia Systems and Applications* (Kluwer) and *Internet and Communications* (CRC Press).

Dr. Furht has initiated the graduate program on multimedia and Internet at FAU, and has presented tutorials, seminars, invited lectures, and keynote addresses at various IEEE and ACM conferences. He has received several technical and publishing awards, and has consulted for IBM, Hewlett-Packard, Xerox, General Electric, JPL, NASA, Honeywell, and RCA