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April 2006

Volume 58, Issue 4



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— Chicago Section —

Wi-Fi Clouds Come to More Cities

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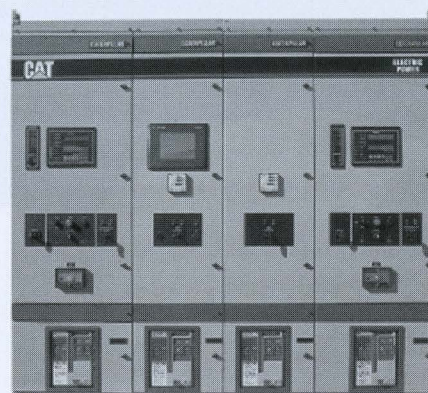
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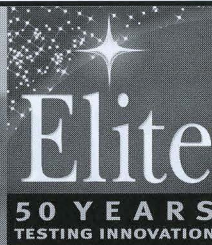
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SCANFAX

April 2006
Volume 58, Issue 4

FEATURES

- 4 Wi-Fi Forecast: More Clouds

UPCOMING EVENTS

- 6 Chicago Chapter of the IEEE Power Engineering Society
ComEd and PECO Generation Interconnection
Guidelines FKA the Blue Book
Wednesday, April 12, 2006
- 7 IEEE EMC Society Chicago Chapter
Motorola's Improved Broadband Over Power Lines (BPL)
Wednesday, April 19, 2006
- 7 Chicago Section (Joint With All Its Chapters and Subsections)
Mobile High Speed Data Applications and Technology
(The Mobile Phone Meets the Couch Potato)
Tuesday, May 2, 2006
- 8 IEEE Fox Valley Subsection
Digital Forensics, Techniques and Methodology
Wednesday, May 3, 2006
- 9 ED/CAS/SSC Chicago Chapter and the Circuits and Systems Society's Distinguished Lecturer Program
Opportunities and Challenges of Wireless Sensor Networks
Wednesday, May 3, 2006

DEPARTMENTS

- 11 Advertiser Index & Professional and Business Directory

Chicago Section Executive Committee Meeting
Tuesday, April 11, 2006, 7:00 p.m.
DeVry DuPage, Room TBA, 1221 N. Swift Rd., Addison, IL
No Registration Needed

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Wi-Fi Forecast: More Clouds

Area-wide wireless fidelity setups or "clouds" are coming to dozens of cities, raising many issues

By Paul Zukowski

The Windy City wants its own "cloud," as area-wide Wi-Fi service is often called. The City of Chicago in February announced plans to seek proposals for setting up a 228-square-mile wireless network that would cover the entire city.

Similarly ambitious Wi-Fi plans have been announced in other major U.S. cities recently as they seek to bring no-cost or low-cost wireless broadband to citizens, visitors, and businesses.

No big U.S. city has a fully operational wireless system yet, but many are working on it.

In San Francisco, Google has proposed creating a free, citywide network supported by ad revenue.

Philadelphia at first set out to build and operate its own city-wide system, but then decided to work with Earthlink.

Milwaukee hopes to have a demonstration network operating over a 6-square-mile area by summer.

Meanwhile, smaller cities across the country already have working municipal Wi-Fi systems going. (For interactive maps of municipal Wi-Fi locations, see Wi-Fi Maps box).

The goals of citywide wireless projects include bringing simplified Internet access to thousands of people who can't afford

cable or DSL, improving the efficiency of the mobile workforce, and pushing technological advancements base on wireless access. Houston, for example, determined that a Wi-Fi network would allow it to create a low-cost parking meter operation that accepts debit or credit cards. Emergency workers can also improve communications with a Wi-Fi network. Having a Wi-Fi cloud could also be a key element in attracting and retaining businesses.

One advantage a wireless system like Wi-Fi has over traditional wired, cabled, and fiber optic systems is a much lower level of investment. A system to cover Chicago, for instance, would mean about 7,500 small antennas on light poles about every two blocks at a cost of about \$18.5 million, which would only buy a few miles of cable or fiber.

Because of the potential competition of municipal Wi-Fi systems, the other providers of broadband access, who have invested billions over the years in wiring the country, are waging legislative and PR campaigns against municipal initiatives. In fact, a bill was introduced in Congress that aims to ban cities from building municipal broadband networks under most circumstances. Telecoms and cable giants are lobbying hard and spending big at the local and state levels as well. The companies argue that public competition puts private enterprise at a disadvantage and that cities

are rushing into the market without a sound business case.

In rural areas, however, Wi-Fi clouds might be the only practical way to deliver broadband Internet access. That is why there are already hundreds of working systems across the country in smaller cities and towns. There is also a grand experiment in rural Oregon that may be the world's largest Wi-Fi cloud, covering 700 square miles in the dry, desolate eastern part of the state around Hermiston. It provides free, high-speed Internet coverage to schools, emergency services and residents. Fred Ziari, an Iranian immigrant who is CEO of EZ Wireless, a Portland-based high-tech firm, built the system with \$5 million of his own money and recoups his costs through contracts with more than 30 municipal and county agencies as well as large commercial farms. Morrow County, for instance, pays \$180,000 a year for access to the cloud and gets, among other things, access to specialized applications such as checking on parking meters remotely. Police in the city of Hermiston now carry wireless computers with which they can download images from video monitors, floor plans of buildings and, soon, access a database of suspects' fingerprints.

The Oregon wireless network uses both short-range Wi-Fi signals and a version of a related, longer-range technology known

as WiMAX. While Wi-Fi and WiMAX antennas typically connect with the internet over a physical cable, the transmitters in this network act as wireless relay points, passing the signal along through a technique known as meshing.

Ziara's company built the towers to match the topography. They are as close as a quarter-of-a-mile apart inside towns like Hermiston, and as far apart as several miles in the high-desert wilderness.

As previously reported in *Scanfax*, the IEEE has come up with both the Wi-Fi 802.11 and WiMAX 802.16 standards. The 802.11 standard has evolved from "a" to "g." By using an enhanced protocol, 802.11g enables mixed network operation. This mixed operation allows legacy 802.11b devices to operate at 11Mbps while new 802.11g devices operate at 54Mbps on the same network.

Compatibility of all 802.11 devices is also a priority of the Wi-Fi Alliance, a nonprofit international association formed in 1999 to certify interoperability of wireless Local Area Network products based on the IEEE 802.11 specification. Currently the Wi-Fi

Alliance has member companies from around the world, and hundreds of products have received Wi-Fi certification.

In a white paper, the Wi-Fi Alliance brings up challenges associated with public access such as concerns over security and various difficulties many users will have establishing a wireless connection due to brick walls and other barriers. The competition with already established public hotspots and agreements between providers for access to a citywide cloud could also be problematic. This is being handled in England by the company providing the citywide clouds, called The Cloud, agreeing to honor several common ISPs as having access. Cell phones with Wi-Fi capability will also be able to use The Cloud.

Issues like these issues could represent significant obstacles to a widespread public embrace of Wi-Fi public access networks. Until they are addressed, the full potential of Wi-Fi public access cannot be realized, and ubiquitous access will remain more of a vision than a reality. ■

Wi-Fi Maps

Hundreds of community Internet and municipal broadband projects have spouted up across the country. Here are two resources that feature updated information on these systems and allow searching by type, such as Wi-Fi or fiber optic.

www.freepress.net

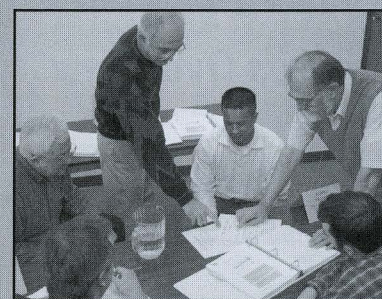
Free Press is a national nonpartisan organization that supports public participation in media policy debates. Free Press keeps an eye on community Internet projects and has detailed information on how each one works and the rates they charge. Search the site for "community internet" or click on "Internet and Broadband" under "Issues" and click on one of the "community Internet" links to find the interactive map. It allows you to zoom in on areas.

CNET News.com

From the home page, use the site search function to search for "municipal Wi-fi map" and click on the search result, "Municipal broadband and wireless projects map. The interactive map can be set to display functioning Wi-Fi projects, municipal regulations covering broadband, and other choices.

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\$300 discount if you register by March 27th.

Lunch Meeting

Chicago Chapter of the IEEE Power Engineering Society

ComEd and PECO Generation Interconnection Guidelines FKA the Blue Book

Wednesday, April 12, 2006

Mike Zimney
ComEd/Exelon Energy Delivery

About the Topic:

Mike Zimney will tell the tale of two cities, cultures, and differing technical requirements that are brought together by a merger to become one.

The story will tell about the effort to combine and choose best practices, and in a few cases leave alone the technical requirements of two successful utilities with respect to the interconnection of generation to their respective Transmission and Distribution Systems. He will also clarify the process of interconnection to the ComEd and PECO systems.

About the Speaker:

Mike Zimney works to interconnect generation customers to the ComEd and PECO Transmission and Distribution Systems. In most cases these generators also wish to sell their power in the PJM Market. As a Senior Contract Specialist, his main duties today include, but are not limited to, all contractual aspects of interconnected generation and transmission projects, the management of the projects that enter through the PJM queue and the management of future, present, and past contracts with interconnected entities.

Location:

Chicago Bar Association, 321 South Plymouth Court, Chicago, IL (near the intersection of Jackson and Dearborn)

Time:

11:30 Social
12:00 Lunch (optional)
12:00 Presentation
1:00 Adjourn

Reservations:

Please call the IEEE Business Office by noon on Monday 10 Apr 2006 at (630) 493-4333 or (800) 898-IEEE to make your reservation. Or, submit your data via the Online Reservation Form, <http://peschicago.org>

Lunch tickets can be purchased in the lobby bookstore (\$13.00).

Continuing Education:

IEEE technical meetings may be acceptable as continuing education.

Lunch Meeting

IEEE Communications/Computer Society Chicago Chapters

IP Multimedia Subsystem Architecture and Standards Overview

Tuesday, April 18, 2006

Thomas Towle
Twister Consulting, LLC

About the Topic:

The IP Multimedia Subsystem (IMS) is being adopted as the core network architecture for IP based telecommunications systems including UMTS and cdma2000 cellular networks, Next Generation Networks, both fixed and mobile, PacketCable systems, WiMAX systems, and others. This presentation will provide some of the background and history of the IP Multimedia Subsystem (IMS) from a standards perspective. The presentation will cover the 3GPP/3GPP2-IMS architec-

ture, including the functional entities and interfaces. The presentation will also show, at a high level, how IMS operates for network registration, session origination and session termination scenarios.

About the Speaker:

Thomas Towle is president of Twister Consulting, LLC. He joined Bell Laboratories in 1978 after receiving his Master of Science in Electrical Engineering from the University of Illinois. He spent several years in the Computer Systems Division in operating system and network software development and later worked in the Wireless Systems Division on cellular

standards development. He has worked on the development of GSM standards.

Location:

IIT Rice Campus, Room 166
Map: <http://www.rice.iit.edu/directions.html>

Time:

6:30 p.m. Social (Free snack and beverages)
7:00 p.m. Presentation

Cost: No Charge.

Reservations:

Not required. Registering your intent of attendance at ieechi@yahoo.com is appreciated.

Evening Meeting

IEEE EMC Society Chicago Chapter

Motorola's Improved Broadband Over Power Lines (BPL)

Wednesday, April 19, 2006

Dick Illman
Motorola's Enterprise Mobility Solutions

About the Topic:

BroadBand over Power Line (BPL) is seen by some as a cost effective competitor to Cable and DSL Internet consumer access as well as a way to improve the reliability of the electric utility services. It is seen by others as a large source of intolerable interference in the RF spectrum. Motorola has developed an enhancement to the HomePlug standard, called Powerline LV which reduces RF interference to and from infrastructure and does not use the medium voltage power lines as a radiating element.

About the Speaker:

Mr. Illman is a Principal Staff Engineer with Motorola's Enterprise Mobility Solutions in Schaumburg, Illinois. His 31

year career with Motorola has focused on System Design and Implementation. He has been working on enhancements to a Canopy™ wireless and HomePlug standard solution for delivering IP connectivity using only low voltage electric utility power lines. This solution includes RF interference protection to and from existing licensed HF users. Mr. Illman provides technical support for a wide variety of wireless and wired solutions for customers in the Enterprise market space including Utilities, Fortune 500, Transportation, and Couriers.

Mr. Illman has a Bachelor of Science Degree in Electronic Engineering from California Polytechnic State University. He has a patent for interference reducing enhancements to the HomePlug standard. Mr. Illman has been an active licensed amateur radio operator since 1969.

Location:

DLS • 1250 Peterson Drive
Wheeling, IL 60090

Time:

6:30 p.m. Social Hour
7:00 p.m. Meeting Start

Reservations:

Jack Black • Phone: 847-537-6400

For more information:

IEEE EMC Society
www.ewh.ieee.org/soc/emcs/chicago/

Also, mark your calendars for the Annual IEEE EMC Mini-Symposium

Tuesday May 16, 2006

8:00 a.m. – 5:00 p.m.

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Dinner Meeting - Lecture - Awards

Chicago Section (joint with all its chapters and subsections)

Mobile High Speed Data Applications and Technology (The Mobile Phone Meets the Couch Potato)

Tuesday, May 2, 2006

Jack Kozik
Lucent Technologies

About the Topic:

As consumers we have seen the evolution of mobile phone services from a pure voice-only wireless telephone to a feature rich service with voice, photos, ringtone, video clips, web surfing, instant messaging, etc. Every year, new devices get put on the market that add exciting new services;

this year, music downloads and Mobile-TV have lots of buzz... lots of fun marketing from the mobile service providers!

This talk gives a survey of the underlying technologies that enable these new services. The talk will introduce some of the technology buzzwords (e.g. EVDO, UMTS, IMS) and discuss some of the engineering trade-offs that were made in building today's Mobile High Speed Data

networks. In short, the mobile device has evolved to a digital device that supports data download speeds that rival the speeds of today's DSL broadband networks.

About the Speaker:

Jack Kozik is CTO and Director of Architecture for Lucent Technologies'

continued on page 8...

Applications Group. He has over 20 years of experience in the telecommunications field. His team at Lucent defines architectures for new applications for mobile and converged service providers, with focus on SIP-based real time communications applications and other applications that link telecom with media and content services. Jack has 3 patents in the areas of Internet Telephony and Mobile Network Fraud detection. He holds a Bachelors and Masters degrees from Purdue University. Jack is a Senior member of the IEEE.

Awards Recognition:

The Chicago Section will be using this occasion to recognize the 2005 and 2006 Fellow Award Recipients.

Location:

White Eagle Banquet Hall
6845 N. Milwaukee Ave.
Niles, IL 60714

Directions:

From Edens: West on Touhy to Harts/Gross Point Road (1st stop light after Caldwell). Left on Harts and continue southwest to end of street. Left on Milwaukee to White Eagle. **From Kennedy WB:** Exit at 82B Bryn Mawr. Straight ahead off exit ramp on to Avondale. Northwest on Avondale to 1st stop light, Nagle. Right on Nagle and continue north to Milwaukee. Left on Milwaukee to White Eagle. **From Kennedy EB:** Exit at Nagle. Left on Nagle and continue north to Milwaukee. Left on Milwaukee to White Eagle.

Time:

6:00 p.m. Social
7:00 p.m. Dinner
8:00 p.m. Presentation

Cost:

\$30 per person which includes rolls, salad, family style dinner, and dessert.

Reservations:

Please call the IEEE Message Center at (800)898-4333 or (630)493-4333 by 1p.m. Monday, May 1st. For information, call Norm Phoenix at (773)631-4917 or Connie Kelly at (847)297-6610.

Evening Meeting

IEEE Fox Valley Subsection

Digital Forensics, Techniques and Methodology

Wednesday, May 3, 2006

Ken Warren

Senior Instructor in the investigation and examination of computer related crime, AccessData

About the Topic:

In this 2 hour presentation, attendees will learn valuable information about where data can reside on digital evidence, how it is extracted and how they can protect it against alteration.

Methodology will be discussed relating to Imaging and processing of digital media in conjunction with case studies. Major topics of discussion are:

- An Overview of Digital Forensics
- Recovery of deleted and hidden data
- The necessity for Automation in data processing
- Identifying and defeating the use of data encryption
- Windows Registry areas of interest

About the Speaker:

Kenneth Warren serves as a senior instructor in the investigation and examination of computer related crime. He also assists with the development of innovative training solutions for law enforcement agencies as well as worldwide corporate entities. Prior to joining AccessData, Ken served as a police officer and detective for the Greeley, CO Police Department. Ken's experiences with the police department include service in SWAT, homicide, financial and complex crime and major crime scene investigation. Working both as an investigator and examiner on hundreds of cases, Ken was responsible for the creation of department policy and training regarding the collection of computer related evidence and the investigation of computer and Internet related crime. Ken designed and implemented the Computer Crimes

Section at the Greeley Police Department and the Digital Evidence Section at the Greeley/Weld County Forensic Laboratory. Ken is a member of the International Association of Computer Investigative Specialists (IACIS), The American Society of Crime Laboratory Directors Laboratory Accreditation Board (ASCLD/LAB), The High Tech Crime Consortium (HTCC), and the Colorado Association of Computer Crime Investigators (CACCI) where he served as Secretary and President.

Location:

IIT's Rice Campus, 201 East Loop Road, Wheaton, Illinois. Take Rt.56/Butterfield Rd. to first stoplight east of intersection of Butterfield & Naperville roads. Turn north onto East Loop Road (Philips 66 Gas Station on the corner); the campus will be on your right about a block north of Butterfield Road. More detailed directions and a map are available at <http://www.rice.iit.edu/directions.html>

Sponsorship:

IEEE Fox Valley Subsection
IIT/Center for Professional Development
UniForum Chicago

Time:

6:00 p.m. Networking time
7:00 p.m. Presentation

Reservations are not required.

Continuing Education:

Professional Engineers: this meeting qualifies for Professional Development Hours

For more information:

The Fox Valley subsection web page is at www.ieee.org/foxvalley/

Evening Meeting

ED/CAS/SSC Chicago Chapter and the Circuits and Systems Society's
Distinguished Lecturer Program

Opportunities and Challenges of Wireless Sensor Networks

Wednesday, May 3, 2006

Professor Martin Haenggi
University of Notre Dame

About the Topic:

The strategy of deploying large numbers of inexpensive sensing nodes that are wirelessly connected has significant advantages compared to traditional methods to gather information: high spatial resolution, robustness, uniform coverage, stealth, small energy consumption, and low overall cost. Hence the combination of sensors, low-power computers, and radios into wireless sensor networks offers enormous opportunities for almost all scientific disciplines. However, populating our world with networks of sensors in a scalable and resource-efficient way is rather challenging and requires a fundamental understanding of many technical issues that transcend the traditional disciplinary boundaries. We will discuss the technical challenges and approaches to overcome them. In doing so, we will highlight the current activities in sensor network research as well as its interdisciplinary nature.

This is lecture 2 of a 3 lecture series.

Lecture 1 was presented on Oct. 19, 2005 and is available on line at:
<http://www.nd.edu/~mhaenggi/talks/CAS-SensorNets-I.pdf>

Lecture 3 is to be presented at a later date that has not been determined.

About the Speaker:

Martin Haenggi was born in 1969, in Zurich, Switzerland. He received the Dipl. Ing. (M.Sc.) degree in electrical engineering from the Swiss Federal Institute of Technology (ETH) in 1995 and the Ph.D. in 1999, also from ETH. After a postdoctoral year at the Electronics Research Laboratory at the University of California in Berkeley, he joined the faculty of the electrical engineering department at the University of Notre Dame as an assistant professor in January 2001. He is a senior member of the IEEE and 6 of its societies, a member of the ACM and the ASEE, a Distinguished Lecturer for the IEEE Circuits and Systems Society, and a reviewer for numerous international journals and conferences. He serves on the Editorial Board of the Elsevier Journal of

Ad Hoc Networks. For both his M.Sc. and his Ph.D. theses, he was awarded the ETH medal, and he received an NSF CAREER award in 2005. His scientific interests include wireless communications and networking, with an emphasis on ad hoc and sensor networks.

Location:

Bowe Bell & Howell, 760 South Wolf Road, Wheeling, IL., 60090, "Da Vinci" conference room

Time:

6:30 Free Food and Drink
7:00 Presentation

Reservations:

Please call the IEEE Message Center at (800) 898-IEEE or (630) 493-4333 by 1:00 p.m. Monday May 1st.

For more information:

Visit the IEEE ED/CAS/SSC Chicago Chapter website at:
<http://ewh.ieee.org/r4/chicago/ed-cas-ssc/>
or contact John Stuebe at:
johnfstuebe@ieee.org

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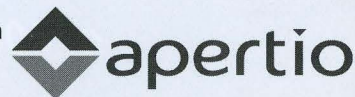
external acceptance tests at customer sites and provide primary technical interface between Apertio and its customers for test and installation of software, and resolution of technical queries and faults.

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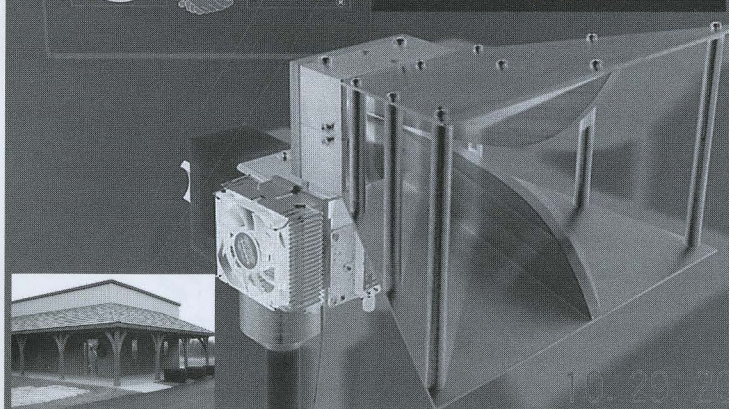
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Advertiser Index

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Midwest EMI Associates	11
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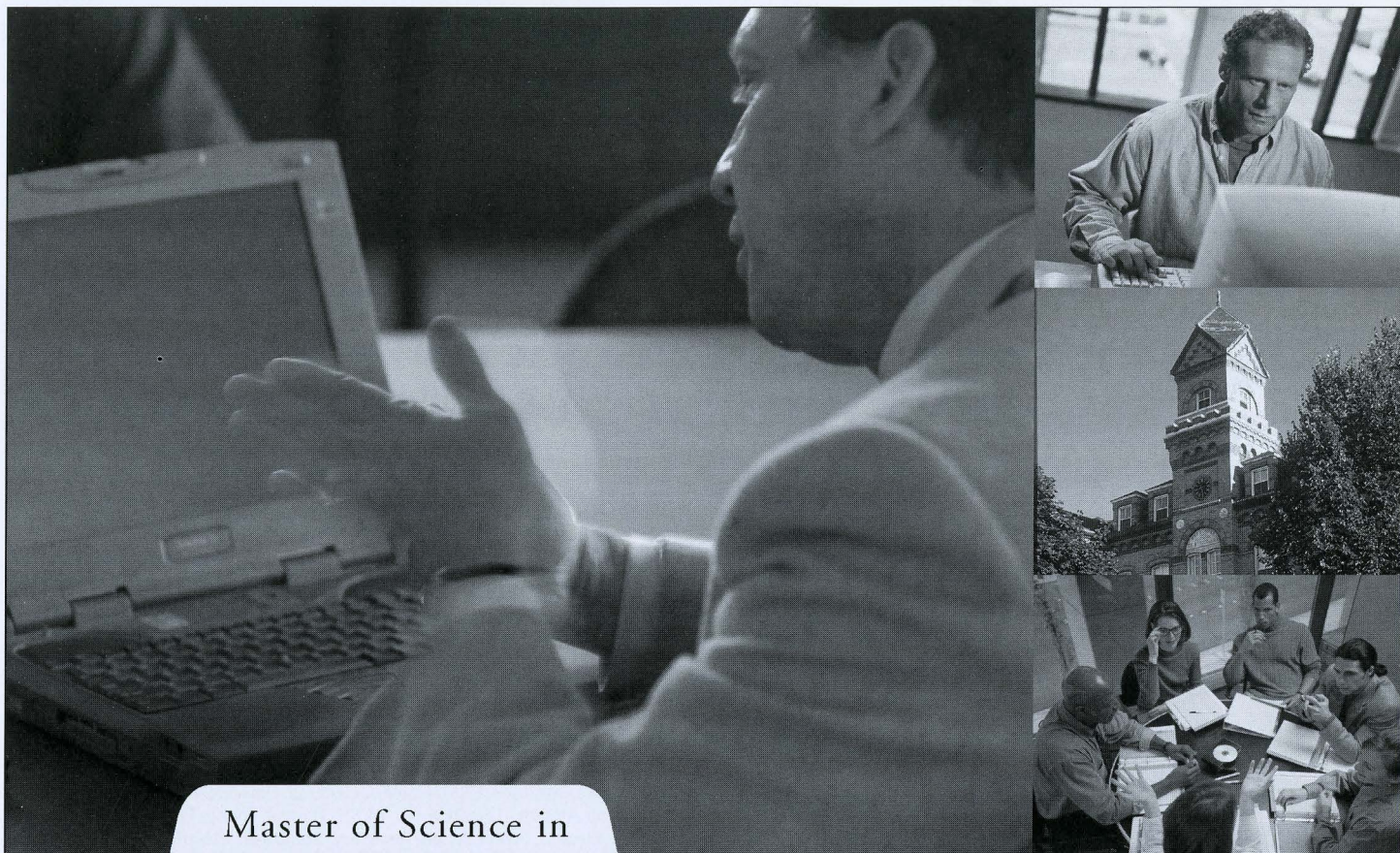
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