



VIRGINIA MOUNTAIN SECTION NEWSLETTER

IEEE Region 3, Council 09, Section 65

April 2000

April Meeting Student Project Night

Lejeune Hall, VMI, Lexington

Come to Lexington on April 20

Four students from VMI and Va. Tech. will compete for \$700.00 in prize money by presenting talks at our annual student paper contest.

This year, the competition was opened to under graduates only – a nice change I'm sure, from their point of view.

The eager competitors and their topics are:

Christopher J. Lowrance:
Using Biometric Information to Encrypt Data for Secure Transmissions Over the Internet

Todd M. Fisher:
Multiuser Detection of Code Division Multiple Access (CDMA) Signals

To maximize the capacity of cellular CDMA systems it is desirable to eliminate interference from multiple users. Algorithms for doing this will be discussed.

Christopher Abbott:
A New Way to Use the Internet to Improve the Quality of Education for Young Americans

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John O. Wells:
Overview of Mobile AdHoc Networks (MANETs)

A MANET is a network of mobile nodes connected to each other over wireless links. Research on how packets are routed through such networks will be discussed.

Judges will be picked from among the attendees.

Directions

From I-81 Northbound:
Take exit 188 (Route 60) to Lexington. Route 60 will merge into one lane (left lane) as you approach the "downtown" area. About 3 miles from the interstate (6th traffic

light?), turn right onto Main Street (Route 11 North, one-way). Drive in the left lane which will force you to make a U-turn onto Jefferson Street (Route 11 South). After the U, drive immediately to the right lane and take the first right onto Letcher Avenue. Follow Letcher Avenue through the Washington and Lee University campus onto the VMI post. Lejeune Hall is diagonally opposite the parade grounds as you enter the post. Drive straight on Letcher until you pass Nichols Engineering Hall on your right. Turn left in front of the barracks (statues of Marshall and Jackson in front) and drive until you have to veer left. Park in front of Lejeune Hall and come to the second floor.

Reservations

Dinner:	6:30 PM
Presentations:	7:30 PM
Cost:	
Members and Guests	\$15.00
Students	\$ 7.00

Call before 5:PM, Monday, April 17:

Roanoke:	
Dan Jackson	(540) 774-0484
Blacksburg:	
Ira Jacobs	(540) 231-5620
Lexington:	
David Livingston	(540)464-7545
Radford and Christiansburg:	
Russell Churchill	(540) 731-0655

VMS Activities

Meeting Report

Ira Jacobs

Broadband and Wireline Access DSL vs.
Cable Modems

The sixth meeting of the 1999-2000 season was held March 16, 2000 at the Clarion Hotel in Roanoke. Thirty-five participants enjoyed dinner together followed by Ira Jacobs review of action in the Telco and CATV competition for broadband wireless services. The key factor is the ability to provide high-speed always-on internet access. Future services – voice, data, video – are anticipated to be provided through internet connections to the home using either present twisted pair copper, coaxial cable, or fiber optics.

Although the common goal is to achieve broadband (greater than 1.5 Megabit/s), a number of technologies are used to enhance the transmission capability of the conduction medium. Since the bit-rate capability of voiceband modems has leveled out at about 56k, two other technologies for broadband wireline access have emerged: digital subscriber line (DSL) systems on telephone company twisted-wire pairs, and cable modems using CATV company coaxial cables. These systems differ not only because of the transmission capabilities of these media, but also because of architecture differences in the way that telephone and CATV networks are constructed. There are differences also in the types of services that can be offered, and the nature (and consequently the cost) of the equipment necessary in the home and in the service provider offices.

These trade-offs are currently going on driven by economic business issues as well as technical considerations. Included in the influences are deregulation, mergers between cable and Telco companies, the continued viability of flat-rate internet access pricing, wireless applications, and service to rural areas. The trends seem to favor the CATV companies to eventually become the main providers of home access. Technically, a full-service passive filter optic access network is projected to provide optical downlink to 16 or 32 homes using a splitter combined with inexpensive transmitters for uplink.

Current interest in this topic was evidenced by a very active question and answer period. Vice-Chair Dave Kingma thanked Ira for his effort in presenting this timely subject. Chair Dan Jackson also announced VMS section members who are recipients of the IEEE Third Millennium Medals. These members include: Dan Jackson, Russell Churchill, John Fennick, Ira Jacobs, David Livingston, and David Geer. The next meeting is the Student Project Night, April 20th, at VMI.

...Howard J. Moses

...Secretary/Treasurer

**Electronic Newsletter
Please Sign On**

Update

Responses to our request to accept the electronic version of the Newsletter in lieu of hard copy are still coming in. We strongly encourage more of you to sign up.

As noted previously, the Newsletter is the largest single expense in the Section's budget. The total cost is about \$0.50 per copy. That's a small number but we send out about 500 copies each month. We are trying to trim the mailing to free funds for other uses.

Please send your name to the editor (j.fennick@ieee.org) with a short note requesting sign-on. We will see that you are placed on the distribution list.

Note, the Newsletter is also available, along with back issues, on our Web site. Go to:

www.ewh.ieee.org/r3/virginia-mountain

...editor

CHAIR'S COMMENTS

by Dan Jackson
d.jackson@ieee.org

Inserted into this issue of the Newsletter is a ballot for approving a completely revised set of Virginia Mountain Section Bylaws. This is the first revision of the Bylaws since 1982, eighteen years. Many things have changed in the past two decades and it seemed time that

we got into line for the 21st century. Not the least of these changes was the need to bring our bylaws into agreement with the Institute Bylaws. The Section executive committee has approved submitting these revised Bylaws to the Regular voting membership of the Section and recommends approval. Please take the time to fill out and return the ballot to Howard Moses. If you wish to see the complete revised Section Bylaws please refer to the Web page as listed on the ballot. The old bylaws, also, are available on the Web page. Help us to modernize the operation of the Section by voting approval of the revised bylaws.



Computer / Control / Industrial Electronics Chapter

**April Meeting
Tuesday, April 4**

**Scott Midkiff
Virginia Tech**

Mobile Internet Technologies: A Brief Survey

Driven by the growing reliance on the Internet and the convenience demonstrated by mobile telephone services, rapid advances are being made in the development and deployment of mobile Internet services. This presentation briefly surveys important technologies — at the link, network, and application level - that enable wireless mobile Internet access. Specific topics discussed include mobile data services, the IEEE 802.11 wireless local area network standard, mobile ad hoc networks, the Mobile Internet Protocol (IP), and the Wireless Application Protocol (WAP).

Scott is known to VMS IEEE members as a former newsletter editor, and long time

(continued on page 5)

VIRGINIA MOUNTAIN SECTION

BALLOT

In order to bring the IEEE Virginia Mountain Section Bylaws into conformance with the IEEE Bylaws, the following proposition is presented to the Regular voting members of the Virginia Mountain Section. Student Members are not included in this case.

Replace all existing Virginia Mountain Section Bylaws as amended May 1976, June 1979, and March 1982 with the IEEE Virginia Mountain Section Bylaws, dated June 2000.

Reasons for the change.

1. Remove Washington County and the city of Bristol, VA from the Section Territory.
(This was approved in May 1982 but never included in the Bylaws).
2. Change the term of elected officers from June 1 through May 31 to the calendar year, January 1 through December 31.
3. Change the Article on Nominations and Elections to support the change to the calendar year term of office.
4. Make all other changes necessary to bring the IEEE Virginia Mountain Section Bylaws into conformance with the IEEE Bylaws, the IEEE Policy and Procedures, and the Regional Activities Board Operations Manual.

To see the complete IEEE Virginia Mountain Section Bylaws, dated June 2000, refer to the VMS Web page.

<http://www.ewh.ieee.org/r3/virginia-mountain/>

Click on Special Revised Bylaws. If you wish a printed copy of the Bylaws contact John Fennick, j.fennick@ieee.org, (540) 552-0052.

Approval by two-thirds of the votes cast is necessary to revoke all previous Bylaws and approve the May 2000 Bylaws. Ballots must be received by April 30 to be valid.

The Section Executive Committee recommends approval of this proposition to up-date the Section Bylaws.

APPROVE

DISAPPROVE

Place Stamp
First Class
Postage

Member Signature

Return Address

Howard J. Moses, Secretary
IEEE Virginia Mountain Section
1735 East Ridge Drive Blacksburg, VA 24060-8569

Remove this sheet and use it to cast your ballot

Fold in thirds so return address shows
Sign, stamp, tape closed, and mail
(Signature third will be removed before ballot is entered for counting)

active member of the Section. He received his degrees from Duke and Stanford, and has been at Tech longer than I have been at GE in Salem (this time). His research interests include computer networks, including wireless networks, broadband network management, network applications, and performance evaluation. He is associated with the Center for Wireless Telecommunications (CWT) and is part of the Virginia Tech team funded by DARPA's Global Mobile Information Systems (GloMo) program. He teaches courses in computer networks, telecommunications, and computer engineering.

The meeting will be held at the GE main plant at 1501 Roanoke Boulevard in Salem. Come to the front door near the flagpole. Guests are Welcome. You do not have to be a member of the Chapter to attend. Social hour begins at 5:00. Coffee and soft drinks will be available. The presentation will begin promptly at 5:30. There is no charge.

All IEEE members and Guests are welcome. Reservations ARE appreciated! Please call Dave Geer, 540-387-7359 by 5 PM Monday.

...*Dave Geer*

Awards

Last year the Board of Directors of IEEE decided to celebrate the new millennium by awarding Third Millennium Medals to a number of IEEE volunteers who had contributed outstanding service to either their Section or Society. Because of our size, the Virginia Mountain Section was authorized to award five of these medals. Awardees were selected through member nominations.

At the March meeting, the following VMS members were honored:

Dr. Russell J. Churchill - For outstanding service to the Virginia Mountain Section as a past Section Officer, filling all the offices of the Virginia Council, and for his outstanding leadership of SoutheastCon '97 at Virginia Tech.

John H. Fennick - For outstanding service to the Virginia Mountain Section as the Newsletter Editor since October 1993, six

and one half years, and for his work in completely revising the Section Bylaws. You will have a chance to vote on the new Bylaws shortly.

David H. Geer - For his outstanding contribution to the Virginia Mountain Section as founding chair of the joint Computer/Control Systems/Industrial Electronics Chapter in the 1970s, as Membership Chair during the 70s, and as Chair of the same joint chapter for several years in the 1990s after returning to Roanoke from eight years in Schenectady, NY.

Dr. Ira Jacobs - For outstanding services to the Virginia Mountain Section as Co-Chair of SoutheastCon '97 and as a long time member of the Section Executive Committee.

David L. Livingston - For his outstanding contribution to the Virginia Mountain Section as Section Chair for two consecutive terms (the only one in our recollection to ever do so), for his excellent scheduling of rooms as the local arrangements chair for SoutheastCon '97, and for his continuing support of student activities.

Edward D. Wheeler - For his service as an active member of the Virginia Mountain Executive Committee and for his service as Secretary/Treasurer, Vice Chair and Program Chair.

Because Ed is now at Rose-Hulman Institute in Terre Haute, Ind. his medal will be presented by the Central Indiana Section at a ceremony in May.

...*editor*

Attention Chapter Chairs

Need help with Meetings?

Meetings help to achieve the goals of education and professional advancement basic to all IEEE Technical Societies and provide a way to manage Chapter business. For some pointers on the basic components of holding successful meetings, go to the Section/Chapter Support web page at

www.ieee.org/ra/scs

Select the link for Resources for Officers, then "How to hold a Successful Chapter Meeting."

...*editor*

Ads in Your Newsletter?

Over the past month, the issue of advertisements in the Newsletter has become an item of interest.

It began with a request from IEEE Continuing Education to run targeted educational materials ads. A quick canvassing of members subscribing to the e-Newsletter effectively "shouted that down".

A second question followed: What about employment opportunity ads, sponsored by local and-or national companies? A similar poll shows a split of opinion but some members, on either side, apparently have strong feelings about it.

The fact such ads might provide a small revenue source for the Section is, in my opinion, of little consequence.

A suggested alternative was to post such ads on the Web Site.

If you have an opinion, send comments to me at: j.fennick@ieee.org

Let's hear from you.

...*editor*

Correction

The URL for the **CEU COURSE DIRECTORY** as announced in the January issue is incorrect. The directory is located at <http://www.ieee.org/organizations/eab/ceucourselist.htm>.

1999-2000 MEETING SCHEDULE

DATE	SPEAKER/TOPIC	MEETING PLACE
September 16	50th Anniversary	Hotel Roanoke
October 21 Joint Meeting with Industry Applications	Dr. Jason Lai, Virginia Tech Topic: "Electric Vehicles and Power Electronics"	Appalachian Electric Power, Christiansburg
November 18 Partners' Night	Nancy Vorona, Industry Director for Advanced Materials & Electronics, Virginia Center for Innovative Technology "The Electronics Industry in Virginia - Plans for the Future"	Clarion Hotel, Roanoke
January 20	Dr. Dennis G. Sweeney Center for Wireless Telecommunications Department of Electrical Engineering, VA Tech "Local Multipoint Distribution Services"	Appalachia Electric Power, Christiansburg
February 17	Bart Cregger, Assistant Dean of Engineering, VCU "Engineering Education for the 21st Century: The Model at VCU"	Appalachian Electric Power, Christiansburg
March 16 Joint Meeting: Industrial Electronics/Computer/Control Systems	Ira Jacobs, Virginia Tech DSL vs. Cable Modems Telco and CATV Competition for Broadband Wireline Access	Clarion Hotel, Roanoke
April 20	Student Project Night	Lejeune Hall VMI, Lexington
May 18	Plant Tour	Cloverdale Station

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Vacant

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IEEE Web:
<http://services1.ieee.org/membersvc/coa/intro.htm>
(Changes are forwarded to the Newsletter)

Visit the VMS WEB page:

www.ewh.ieee.org/r3/virginia-mountain

Section/Chapter meeting notices, and reports. Past issues of the Newsletter, PACE Patter, etc. Articles, organizations, and activities affecting our profession. Contributions welcomed – make them on-line.