

# E&Y CARAT NEWS BRIEFS

Ernst & Young Center for Auditing Research and Advanced Technology (E&Y CARAT)

## DIRECTOR'S NOTE

The semester started with two groups of Ernst & Young Visiting Scholars at the E&Y CARAT (Ernst & Young Center for Auditing Research and Advanced Technology). The first group included Professor Miklos Vasarhelyi, William Von Minden Distinguished Professor of Accounting and Information Systems, and Professor Alex Kogan, both of Rutgers University. They were in Lawrence from January 29 to February 1, 1999. In the second group were Professor Theodore Mock, Arthur Andersen Alumni Professor of Accounting at the University of Southern California, and Professor Arnold Wright, Arthur Andersen Professor of Accounting at Boston College. This group visited the E&Y Center from February 8 through 11, 1999.

When these visiting scholars come to Lawrence, we at the E&Y CARAT work a schedule of 12 to 14 hours a day. It wouldn't be an overstatement to say that we all enjoy working that way for two reasons: One, it is exciting to work on these original ideas and second, we want to complete our research papers

before someone else gets hold of our ideas and writes a paper.

You will be glad to know that two papers supported by E&Y CARAT won best paper awards at the recent 1999 Hawaii International Conference on Systems Sciences (more details are provided later).

Also, Dr. Kay Nelson received partial support for her study on software operations support expertise from the E&Y CARAT. The resulting paper, "Understanding Software Maintainer Expertise: A Causal Mapping Approach," with KU Ph.D student Sucheta Nadkarni, strategy professor Dr. V. K. Narayanan, and Dr. Mehdi Ghods from the Boeing Company, was accepted for publication in *MIS Quarterly*, the premier journal of the information systems field.

The E&Y CARAT has been an important part of Dr. Nelson's career during her four years at KU. In her own words: "Participating in the CARAT allows me to combine my information systems research with accounting research in the AIS division. It also gives me a chance to work with some of the top scholars in the world, which greatly enhances the quality of

my work. The inclusion of the student fellows allows my research to be translated to practice through the classroom and the Internet."

Having these visiting scholars come to the KU campus not only helps us by exposing our colleagues and students to their research activities, but also

generates opportunities for us to visit their institutions and make KU's presence known there (please see the details later in the newsletter).

Overall, the E&Y CARAT has a positive impact on our teaching and the research mission of the School of Business. I wish to thank you all for supporting the activities of the Center.



Rajendra P. Srivastava, Ernst & Young Professor and Director, The Ernst & Young CARAT

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## VISITING PROFESSORS INVOLVED IN FRAANK PROJECT

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Professor Miklos Vasarhelyi and Professor Alex Kogan worked intensely during their visit in January, along with Professors Kay Nelson and Raj Srivastava on the FRAANK (Financial Reporting and Auditing Agent with Net Knowledge) project. The FRAANK project is a major project that deals with issues related to continuous monitoring, continuous auditing, on-line reporting, and on-line auditing. One module of FRAANK currently in progress deals with the following:

It searches the SEC EDGAR database for the list of quarterly filings (10-Q) of a user specified company. For a 10-Q chosen by user, it retrieves the filing from the SEC Web site; analyzes (parses) the filing to find and return several accounting numbers (e.g., cash, assets, revenues, income), recognizing their units (\$K, \$M, etc.).

It finds and extracts financial statements (balance sheet, income, and cash flows). It computes financial ratios (quick, current, etc.).

The above tasks are quite complicated. The 10Q's information on the Edgar database is available in the form of images. FRAANK must identify the year, the specific financial statement (e.g., a balance sheet or an income statement), a particular line item (e.g., cash or accounts receivable), and the amount associated with the line item. Determining the amount in a line item is not that simple. Usually financial statements are presented in the unit of thousands or millions with a reference to the missing zeros at the top of the financial statement. There have been many challenges during our efforts but the project is progressing well.

We wish to especially acknowledge the efforts of two Ernst & Young Fellows, Hai Lu and Meredith Zeppetella, and we sincerely thank them for their painstaking efforts.

*For a preview of the FRAANK system:*

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If you want to try some features of FRAANK then go to "<http://lark.cc.ukans.edu/cgiwrap/sirvasta/agentwork.cgi>" and play around.

## *Bibliography of FRAANK Publications*

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The following papers related to the FRAANK project have been either published or have been presented at various conferences:

Nelson, K., A. Kogan, R. P. Srivastava, M. Vasarhelyi, and H. Lu "Virtual Auditing Agents: The EDGAR Agent Challenge," *Decision Support Systems* (forthcoming).

Nelson, K., A. Kogan, R. P. Srivastava, and M. Vasarhelyi, "Inquiring Information Systems in the Boundary-Less World: The FRAANK Example," has been accepted by the Americas Conference of The Association of Information Systems, and will be published in the conference proceedings in August 1999.

Nelson, K., A. Kogan, R. P. Srivastava, and M. Vasarhelyi, "Virtual Auditing Agents: The Edgar Agent Example," *Proceedings of the Hawaii International Conference on Systems Science*, January 1998.

Nelson, K., S. Scholz, and M. Zeppetella (student), "An Examination of Context in Non-Financial Information Disclosed on the Internet," to be submitted to *Accounting, Management, and Information Technology*.

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Kogan, A., K. Nelson, R. P. Srivastava, M. A. Vasarhelyi, and H. Lu, "FRAANK: Financial Reporting and Auditing Agent with Net Knowledge," Presented at the 1998 Annual Meeting of the American Accounting Association, New Orleans.

Kogan, A., K. Nelson, R. P. Srivastava, and M. A. Vasarhelyi, "Toward Internet Auditing with 'FRAANK'," III International Conference on Accounting, Finance, and Tax" held in Punta Umbria, Spain, September 25-26, 1997.

## VISITING SCHOLARS TAKE PART IN AUDIT JUDGMENT RESEARCH PROJECT

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The second group of visiting scholars (Professors Mock and Wright) worked with Raj Srivastava on several projects while in Lawrence. The main thrust of this research effort is to make the audit process more efficient and affective compared to the existing approaches. The effort of this collaboration has resulted into one published paper and three working papers and several projects under progress:

Srivastava, R. P. and T. J. Mock, "Evidential Reasoning for WebTrust Assurance Services," *Proceedings of the 32<sup>nd</sup> Hawaii International Conference on Systems Science*, January 5-8, 1999.

Wright, A., T. J. Mock, and R. P. Srivastava, "Audit Program Planning using A Belief Function Framework," *Deloitte & Touche/University of Kansas Symposium on Auditing Problems*, 1998 (invited).

Srivastava, R. P., A. Wright, and T. Mock, "Analytical Modeling of Multiple Hypotheses Evaluation in Auditing." Presented at the 1999 European Accounting Association Annual Meeting, Bordeaux, May 5-7.

Mock, T., Wright, A., R. P. Srivastava, and H. Lu, "A Protocol Study of the Framing and Evaluation of Multiple Hypotheses," to be presented at the 1999 International Conference on Audit Judgment, which will be held in Los Angeles, June 24-25.

Wright, A., T. Mock, and R. P. Srivastava, "Causal Reasoning of Multiple Hypotheses In Complex Settings," Working Paper, School of Business, University of Kansas.

*The E&Y CARAT researchers wish to express sincere gratitude to the local accounting firms who provided their data and subjects for the study.*



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## PRODUCTIVE RESEARCH EFFORTS BY E&Y STUDENT FELLOWS, MENTORS

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In addition to the visiting scholars' active participation in our research activities, the E&Y Student Fellowship and E&Y Faculty Mentor program has also contributed to the research mission significantly. The following research papers are the result of this effort:

Robert Prentice, Vernon J. Richardson and Susan Scholz, "Corporate Web Site Disclosure and Rule 10b-5: An Empirical Evaluation," *American Business Law Journal* (forthcoming).

Ettredge, M., and R. P. Srivastava, "Using Digital Analysis to Enhance Data Integrity," *Issues in Accounting Education* (forthcoming).

Ettredge, M., V. Richardson, and S. Scholz. 1998. "Financial Data at Corporate Web Sites: Do Information Clienteles Matter?" Working Paper, School of Business, University of Kansas.

Ettredge, M., V. Richardson, and S. Scholz. 1998. "The Presentation of Financial Data at Corporate Web Sites" This paper is under review at *Accounting Horizons*.

## SPEAKERS AND PRESENTATIONS ENHANCE RESEARCH EFFORTS

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The E&Y CARAT participates in sponsoring two weekly research seminars: the Accounting and Finance Workshop, and the Management Science and Technology Seminar. The purpose of these seminars is to share the research work conducted by faculty, Ph.D. students, and distinguished scholar from other institutions.

The following individuals were the visiting speakers this semester: Professor Robert C. Lipe, KPMG Professor, University of Oklahoma; Professor Bin Srinidhi, Rutgers University-Newark, and Professor David Larcker, Ernst & Young Professor, University of Pennsylvania. Please see this semester's schedules given later for the details.

## *National and International Participation*

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Professor Raj Srivastava presented the following papers at the 1999 Hawaii International Conference on System Sciences. Both papers received the best paper award in their respective areas:

Srivastava, R. P. and Hai Lu, "Evidential Reasoning Under Uncertainty Using Belief Functions: A Structural Analy-



*Raj Srivastava and Arnold Wright*

sis of Audit Evidence," *Proceedings of the 32<sup>nd</sup> Hawaii International Conference on Systems Science*, January 5-8, 1999.

Srivastava, R. P. and T. J. Mock, "Evidential Reasoning for WebTrust Assurance Services," *Proceedings of the 32<sup>nd</sup> Hawaii International Conference on Systems Science*, January 5-8, 1999.

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<http://lark.cc.ukans.edu/~srivasta/>

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Professors Theodore Mock, Arnold Wright, and Raj Srivastava, were the keynote speakers and presented a session on "Impact of Electronic Commerce on Accounting Education, Research and Practice" at the 1999 Indian Accounting Association Annual Meeting, February 25-27, Agra, India. Also, they presented two papers at the 1999 European Accounting Association Annual Meeting, Bordeaux, France, May 5-7.

## LOOKING AHEAD . . .

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Professor Arnold Wright has invited Raj Srivastava and Ted Mock to spend a week in June (June 1-5) in Boston to work on the unfinished research papers.

Professor Miklos Vasarhelyi has invited Professors Raj Srivastava and Kay Nelson to Rutgers University in July to work on the FRAANK project. Professor Theodore Mock has invited Professors Raj Srivastava and Arnold Wright to the University of Southern California for a week in August to work on the audit judgement research.

## E&Y CARAT'S RESEARCH WORKSHOP CALENDAR

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The Ernst & Young Center for Auditing Research and Advanced Technology offers two research workshops on Friday each semester, where faculty and Ph.D students share findings and exchange research ideas.

The following Friday seminars were held in the Spring 1999 semester:

### **Accounting and Finance Workshops, 1:30-3:20 pm, 428 Summerfield Hall**

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1/29: Professor Miklos Vasarhelyi and Professor Alex Kogan, Rutgers University-Newark, "Analytical Techniques for Continuous Auditing."

2/5: Oran Alston, Faculty Candidate in AIS at KU, Ph.D. Candidate at the University of Pittsburgh, "Understanding the Impact of Social and Technological Factors on Consumer Behavior Over the Internet: The Role of Trust, Technology Characteristics."

2/12: Dmitri Roussinov, Faculty Candidate in AIS, Ph.D. Candidate at the University of Arizona

2/19: Dr. Jim Nelson, Faculty Candidate in AIS, School of Business, University of Kansas

2/26: Professors Paul Koch and Cathy Shenoy, University of Kansas, "The Information Content of Dividend and Capital Structure Policies."

3/5: Professors Mark Hirschey and Vernon Richardson, University of Kansas, "The Value Relevance of Goodwill Write-down Decisions."

3/12: Professor Robert C. Lipe, KPMG Professor, University of Oklahoma

4/2: Professor Paul Koch, University of Kansas, "Mid-day Volatility Spikes in U.S. Futures Markets."

4/9: Professor Bin Srinidhi, Rutgers University-Newark, "The Effect of Information on Short Term Price Reversals."

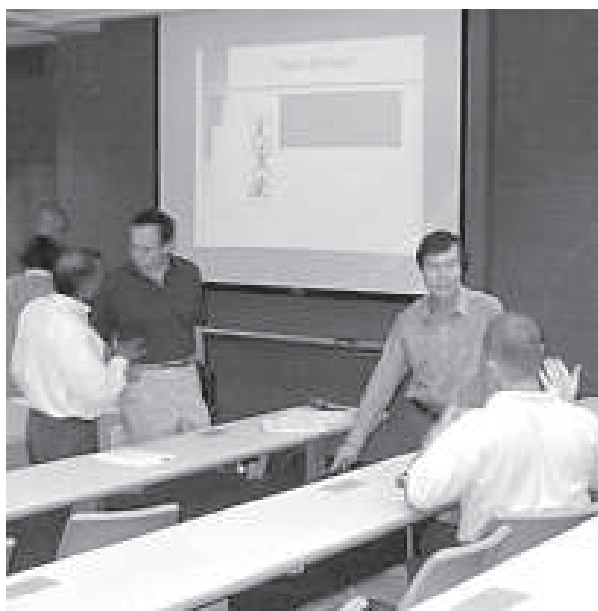
4/23: Professor David Larcker, Ernst & Young Professor, University of Pennsylvania

Fri, 4/30: Professor Rajendra Srivastava and Hai Lu, University of Kansas

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5/7: Professor Jim Waegelein, University of Kansas, "The Influence of Long-term Performance Plans, Method of Payment, and Type of Acquisition on Post-merger Financial Performance"



## **Management Science and Information Systems Seminars, 10:30-11:50 am, 428 Summerfield Hall**

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Jan 29: Paul Johnson, Associate Professor of Political Science, University of Kansas, "Agent-based Modeling of the Exchange Theory of Interest Group Politics: A Swarm Toolkit Application"

Feb 05: Russell Almond, ETS  
Visual Explanation Tools for Graphical Models

Feb 12: Donald Lien, Professor of Economics, University of Kansas, "Forecasting Quarterly Variables with Monthly Data"

Feb 19: Vishy Cvsa, PhD Candidate, Case Western Reserve University, "Pricing Claims under GARCH-Level Dependent Processes"

Feb 26: David Lowell, Assistant Professor, UC-Santa Clara, "Decision Analysis with Incomplete Probability Assessment"

Mar 05: David Paul, Assistant Professor, School of Business, University of Kansas, "Wicked Decision Problems in Remote Health Care: Tele-medicine As A Tool for Sense-making"

Mar 12: Prakash P. Shenoy, Ron Harper Distinguished Professor, School of Business, KU, "An Introduction to Bayes Nets"

Mar 19: Debbie Armstrong & Marie Buche, PhD Students, School of Business, University of Kansas, "Evaluating the CMM level 3 KPA of Inter-group Coordination: A Theory-Based Approach"

Apr 02: Riza Demirel, PhD Student, School of Business, University of Kansas, "Sequential Valuation Networks and Asymmetric Decision Problems"

Apr 09: Rajendra Srivastava, E&Y Distinguished Professor, School of Business, University of Kansas, "Structural Analysis of Audit Evidence Using Belief Functions"

Apr 16: Elbi George, PhD Student, University of Kansas, "Fast Cycle Capability: A Conceptual Integration"

Apr 23: Prakash P. Shenoy, Ron Harper Distinguished Professor, School of Business, University of Kansas, "Dempster-Shafer Belief Nets: Semantics, Construction, and Comparison with Bayes Nets"

Apr 30: John Charnes, Associate Professor, School of Business, University of Kansas, "Valuation of a Biotechnology Firm: An Application of Real-Options Methodologies"

May 07: VK Narayanan, Professor, School of Business, University of Kansas, "A Critique of Knowledge Management: From a Reading of Nicholas Rescher"