

RIVIER COLLEGE MATHEMATICS AND COMPUTER SCIENCE LECTURE SERIES (FALL 2002 TO SPRING 2005)*

Vladimir V. Riabov, Ph.D.

Associate Professor, Department of Mathematics and Computer Science, Rivier College

Mathematics and Computer Science Lecture Series 2002-2003

October 29, 2002, 7:45 pm - 8:45 pm, Sylvia Trottier Hall Auditorium STH-235

“New Methods of Software Reliability: Estimations and Projections”

David J. Dwyer, BAE Systems

David J. Dwyer is a reliability engineer at BAE Systems, Nashua, NH. He has a M.S. in Computer Science from Rivier College (1999), M.S. in Electrical Engineering from Northeastern University (1980), and B.S. in Physics from Providence College (1963).

The presentation addressed methodology in estimating and projecting software reliability. It helped academic audience to find answers to vital questions: How reliable are industrial software products? Can software reliability be measured exactly? New methods are offered for estimating the test time required and software failures to be corrected to reach reliability goals of the test-and-fix programs. Slides are available at <http://www.rivier.edu/departments/mathcs/Resources/LectureSeries/SoftwareReliability.ppt>.

Mathematics and Computer Science Lecture Series 2003-2004

November 11, 2003, 7:00 pm - 8:00 pm, Memorial Hall Auditorium MEM 102

"Software Systems Engineering – Education and Practice"

David D. Norman, IMPACT Science and Technology, Inc.

David D. Norman is a Principle Software Engineer at IMPACT Science and Technology, Inc. in Hollis, NH. He specializes in Object-Oriented Analysis and Design of real-time software systems. He graduated with a Master of Science in Computer Science from Rivier College in Spring 2004.

The presentation addressed the following Software Systems Engineering issues based upon the author's experience in both college and industry: defining the problem, designing a solution, testing the solution to ensure it meets the requirements, proper documentation, and support after product delivery. It helped academic audience find answers to a vital question: How these aspects are important for a young software engineer to practice modern good engineering? The author discussed how courses he had taken at River College addressed the need for instruction in the new complex areas of software engineering and how they were applied on a specific project for his company.

* WEB: <http://www.rivier.edu/departments/mathcs/Resources/LectureSeries.htm>

Mathematics and Computer Science Lecture Series 2004-2005

April 19, 2005, 6:00 pm - 7:00 pm, Education Building Auditorium EDU 305

"Networking Systems Code Studies with Structured Testing Methodology"

Vladimir V. Riabov, Ph.D., Rivier College

Dr. Vladimir Riabov is an Associate Professor at the Department of Mathematics & Computer Science in Rivier College. He specializes in networking technologies, object-oriented system analysis and design, aeronautics, and system simulation and modeling. He received a Ph.D. in Mathematics and Physics from Moscow Institute of Physics & Technology (1979) and a Master of Science in Computer Information Systems from Southern New Hampshire University (1998).

The presentation reviewed the results of systematic studies of modern networking-systems software. It was shown that the number of unreliable complex code functional modules correlated with the number of customer requests, error-fixing submits, and the possible errors, which were estimated with McCabe and Halstead metrics. It was found that the major reduction of the code complexity (based on the mathematical theory of graphs) leads to significant reduction of errors and maintainability efforts. Test planning and code coverage issues for embedded networking systems were considered as well. Slides are available at <http://www.rivier.edu/departments/mathcs/Resources/LectureSeries/NW-Structured-Testing+McCabe.ppt>.

April 25, 2005, 12:30 pm – 1:30 pm, Dion Center Reception Room

Humanities Lecture Series: "Cryptography Through the Ages: A Layman's View"

Bryan Higgs, Ph.D., Rivier College

Dr. Bryan Higgs is Assistant Professor of Computer Science at Rivier College, and teaches a number of courses, including Database Systems, Web Development, and Programming in Java, C++, and Perl. He has recently developed a course in Computer Security, and in that course has implemented a number of Java programs to illustrate the concepts of Cryptography and some of the underlying mathematical principles behind modern cryptography, plus discussions of a number of other security areas, including viruses, worms, and browser security.

Professor Higgs recently developed a course on Computer Security, and became fascinated by the rich and colorful history of the science and art of cryptography – the creation and transfer of secret messages. This was surprising, because he never considered himself either a historian, or even a student of history. What appealed to him was the diversity of the subject: how many significant historical events were impacted by cryptography, and the amazing number of interesting people who were influential in this history. You might be surprised at the number of these people you are already familiar with from your own knowledge of history, or from other disciplines. The history of cryptography starts in ancient Egypt, progresses through Greek and Roman wars, European city and nation states, Mary Queen of Scots, two world wars, the establishment of the National Security Agency, and the cold war. It culminates in Quantum Cryptography, which is based on the Quantum Theory and the theoretical possibility of Quantum Computers, and promises theoretically unbreakable ciphers. The focus of this presentation was on the historical events, and the people involved, including their motivations, and the consequences of their actions; no knowledge of computers or mathematics was presumed.

Slides are available at

<http://www.rivier.edu/departments/mathcs/Resources/LectureSeries/CryptographyThroughTheAges.ppt>.