Welcome

Welcome to the first edition of The Rapid Responder, the quarterly newsletter of Monmouth University’s Rapid Response Institute.

CRRDS is Renamed Rapid Response Institute

Director Barbara T. Reagor would like to take this opportunity to announce the establishment of the Rapid Response Institute.

“We are growing and evolving. We are growing new business opportunities outside the realm of the Center for Rapid Response Database Systems in support of the Urban Coast Institute and other Department of Homeland Security Centers of Excellence,” Dr. Reagor indicated. “As we broaden our role, including seeking opportunities for professors across all of the schools of the University, the Institute will reflect these changes.”

The Center for Rapid Response Database Systems will still be in existence under the domain of the Rapid Response Institute.

Center Begins Work on Next Million Dollar Contract with St. Francis University (CERMUSA)

The Center for Rapid Response Database Systems has begun work on a Mobile Command Vehicle. The CRRDS received a FY06 Federal Appropriation from the Army to research and develop a Joint Mobile Command and Training Center. The command truck arrived at Monmouth University in April, 2007, and has had its final equipment installed. It will make its debut at CWID at Fort Dahlgren Naval Base, Virginia, in June.

The truck, which was designed by the CRRDS and Homeland Intelligence Technologies (HIT), will allow for the testing and deployment of integrated software applications and real-time database systems for effective use in training, exercise, and response to many hazards as well as real-time support to emergency responders and their managers across Central New Jersey in the event of an emergency.

The CRRDS will work with the Center of Excellence for Remote and Medically Underserved Areas (CERMUSA) of St. Francis University, Loretto, PA, and leverage their extensive knowledge on mobile communication platforms, vehicle-based re-locatable communications and teletraining.

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CRRDS: Two Years of Scholarship and Research...

Since its inception in August, 2004, the CRRDS has published 17 papers, 5 theses, and 6 research presentations. Below is a list of the papers published thus far:

**Papers Published:**

- “An Intuitive Formal Approach to Dynamic Workflow Modeling and Analysis” (Wang; Rosca; Tepfenhart; Milewski; Stoute)
- “Interaction Design Principles for the Bioterror Incident Management Environment” (Milewski)
- “Migrating, Tagalong Displays in the Emergency Management Context” (Milewski; Kelly; Wang; Landrigan)
- “Workflow Management Tool Support for Incident Command Systems” (Stoute; Wang; Rosca; Tepfenhart; Milewski)
- “Incident Command System Workflow Modeling and Analysis: A Case Study” (Wang; Rosca; Tepfenhart; Milewski)
- “Dynamic Workflow Modeling and Verification” (Wang; Rosca)
- “Dynamic Workflow Modeling and Analysis of Incident Command Systems” (Wang; Rosca; Tepfenhart; Milewski; Stoute)
- “RFID—based Tag-Along Displays for Incident Command System Workflow Management” (Landrigan; Milewski; Kelly; Wang)
- “EPC Workflow Model to WIFA Model Conversion” (Tsai; Wang; Tepfenhart; Rosca)
- “TOPOFF 3 Comments and Recommendations by Members of New Jersey Universities Consortium for Homeland Security Research” (Lioy; Roberts; McCluskey; Lioy; Cross; Clarke; Stanton; Tepfenhart; Ferrara)
- “Incident Command Systems Resource-Constrained Workflow Modeling and Its Application to Military Command and Control Decisions” (Wang, Tsai, Rosca)
- “Use of a Markov Chain Model for Epidemics” (Tepfenhart, DeMarco)
- “Innovative Emergency Response Information Technology Applications: Civilian to Military Crossover Opportunities” (Kelly; Milewski)
- “Resource-Constrained and Decision Support Workflow Modeling” (Tepfenhart; Wang; Rosca; Tsai)
- “Inter-organizational Workflow Modeling and Analysis of Incident Command Systems” (Rosca; Wang)
- “Paper or Plastic? Enhanced Paper Maps for Emergency Operations” (Landrigan; Milewski; Bekefi)
- “Low Cost Tabletop Displays in an Emergency Operations Center” (Landrigan; Milewski)

**Theses Supported:**

- “Computational Analysis of Stochastic Epidemic Model” By: Gaureesh Agnihotri
- “Workflow Management Tool Support for Incident Command Systems” By: Michael Jason Stoute
- “A Study of the Effectiveness of Low Cost Interactive Tabletop Displays in an Emergency Operations Environment” By: Lauren Landrigan
- “Modeling and Enacting Inter-Organizational Workflows” By: Michael Tarullo
- “Resource-Constrained and Decision Support Workflow Modeling and Tool Development” By: Anni Tsai

**Research Presentations:**

- “Information Assurance and Integration—the Need to Manage Information for Prevention, Response, Recovery and Mitigation” (Tepfenhart)
- “Technology Challenges in Developing a Rapid Response Database System” (Reagor; Tepfenhart, DeMarco; Soos)
- “Developing Disease Surveillance Systems in New Jersey” (Reagor, Tepfenhart, other panel members)
- “Database Sharing in Emergency Response” (Tepfenhart)
- “Systems Engineering at the Global Level” (Tepfenhart)
- “Decentralized Trust Management Based on the Reputation of Information Sources” (Meng Yu, Wanyu Zang)
CRRDS Finalizes first of DoD Contract Deliverables . . .

On July 13, 2006, the Center delivered five documents to Bill Ginley of the Edgewood Chemical and Biological Center in fulfillment of MOD1 of its DoD contract. The deliverables include both Global Solution Specifications (GSS) and Global Design Descriptions (GDD) for the following:

- Del 1: Health Surveillance (HS)
- Del 2: Incident Command System (ICS)
- Del 3: Disease Diagnostic Tool (DDT)
- Del 4: Human Asset Management System (HAMS)
- Del 5: National Model for All Hazards Preparedness and Response

Professors Bill Tepfenhart, Al Milewski, Jay Wang, Daniela Rosca and Bob Kelly have already been working on MOD 2 of the contract, the establishment of Use Case Scenarios for:

- Bio Hazards
- Chemical Hazards
- Nor’easter Disaster

CRRDS Celebrates Second Anniversary . . .

September marked the 2nd anniversary of the establishment of the CRRDS. Dr. Barbara T. Reagor is proud of the accomplishments of the Center since its inception which include:

- 17 papers published
- 5 theses papers supported
- 6 research presentations

In addition, on July 13, 2006, the Center delivered the first five documents to the Edgewood Chemical and Biological Center (ECBC) in fulfillment of MOD1 of its DoD contract. (See article above).

The Center hosted a celebration to commemorate its anniversary and accomplishments on October 18, 2006, in the CRRDS Trailer.

MU and CRRDS Host SMART Science and Technology Forum

Monmouth University and the CRRDS hosted the SMART States Science and Technology Forum on August 23, 2006, in Wilson Auditorium. Attended by nearly 100, keynote speakers included Congressman Rush Holt and Assemblyman Upendra Chivukula. Ms. Ellen Stein, Director of the Office of Military Affairs, represented Governor Corzine’s Office.

Opening remarks were made by Monmouth University President Paul G. Gaffney II, CRRDS Director Barbara T. Reagor, and SMART Executive Director Bob Carullo. Then the panel presentations were conducted, and attendees participated in subsequent panel discussions on such topics as: Central New Jersey’s Science and Technology Needs; Homeland Security/Homeland Defense; Energy; and Central New Jersey’s Coastal Environment. The first “Real-Time Community of Interest Poll” was conducted by Monmouth University’s Polling Institute. There were several exhibits displayed by attendees as well, including one by the CRRDS, which was staffed by our own Student Researcher Mathew Weisfeld.

Bob Carullo, Director of SMART, says SMART is “of and for the Tech Community.” SMART, which stands for “Strengthening the Mid-Atlantic Region for Tomorrow,” includes Pennsylvania, New Jersey, Maryland and Delaware. According to the organization’s Fact Sheet, its goal is to “Promote the Mid-Atlantic region’s technical enterprise and intellectual vitality for the economic benefit of the entire region.”

The attendees enjoyed the opportunities for networking as well as the presentations by the keynote speakers, panel discussions and displays.

Congressman Rush Holt and President Paul G. Gaffney II

Mathew Weisfeld mans the CRRDS Exhibit at the SMART S & T Forum
Research Presented to United Nations . . .

Chief Technology Officer William Tepfenhart together with Karen DeMarco, epidemiologist with the Monmouth County Health Department, traveled to New York City on February 14, 2007, and presented their research on the Markov Chain Model to the members of the United Nations Monitoring, Verification and Inspection Commission (UNMOVIC).

Professor Tepfenhart and Ms. DeMarco presented their epidemiological modeling system for detecting and tracking disease outbreaks using rapid response database technology to members of the Commission. It is believed that their paper “Use of a Markov Chain Model for Epidemics” is a globally adaptable model that can defend a population against bioterror agents and communicable diseases.

The presentation was well-received, as Dr. Tepfenhart and Ms. DeMarco spent several hours formally presenting their research and discussing practical epidemiological uses for the new computer modeling program. “This shows that the work being done at the Center is getting national and international recognition,” said Dr. Tepfenhart.

“Monmouth University is pleased to be working with the Monmouth County Health Department and to be able to make contributions that can provide a globally adaptable model that can defend a population against bio-terror agents and communicable diseases,” said Director Barbara T. Reagor.

. . . Do you “Wiki” ???

Well, if you are a member of the CRRDS you do!!! Professor Bill Tepfenhart and Technical Assistant Jen Braker have just completed the installation and are in the process of creating the CRRDS “Responder Wiki” Webpage. The purpose of the page is to set up a centralized location for the exchange of information, data, ideas and resources with members of the homeland security and first responder community nationwide.

Check it out at:
http://crrds.monmouth.edu//responderwiki.

Our Joint Mobile Command and Training Vehicle has arrived . . .
The Ribbon Cutting Ceremony will take place in ~ July, 2007 ~

RRI Participates in First Monmouth University CERT Training Program

The Rapid Response Institute is proud to have two of its members graduate from the Monmouth University CERT Training Program. Director Barbara T. Reagor and Chief Technology Officer Bill Tepfenhart both graduated in the first class of the Monmouth University CERT Training Program, and Professor Tepfenhart was named Team Leader of the newly formed team.

Monmouth University is the first private university in New Jersey to have a certified CERT Team. The MU CERT Team (Community Emergency Response Team) is comprised of professors, administrators, staff, students and police.