CURRICULUM VITA

CHRISTOPHER CANFIELD GREEN MD, PhD, FAAFS
(Fellow, American Academy of Forensic Sciences)

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Forensic Medicine - Engineering Mechanics
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DETROIT MEDICAL CENTER, WAYNE STATE SCHOOL OF MEDICINE
4201 St. Antoine St, UHC 9B Radiology & Psychiatry, Detroit, MI 48047

02/'03- present

- **Executive Director, Emergent Technologies Research Division**
  - **Transportation Imaging Laboratory**
  - **Government Systems Laboratory**
  - **Social Systems Laboratory**

- **Fellow, Clinical Neuroimaging & Professor, Departments of Diagnostic Radiology, and Psychiatry & Behavioral Neurosciences**

CURRENT US GOVERNMENT, STATE, PRIVATE, & University Medical School, and Detroit Medical Center Boards

- **Chairman, National Academy of Sciences Committee on Military and Intelligence Methodology for Emergent Physiological and Cognitive/Neural Science in the Next Two Decades**

- **Chairman, Joint Independent Science Panel: Office/Undersecretary of Defense for Operations Research (DUSA/OR & Airforce ChemBio Defense & Bioterrorism/Homeland Security)**

- **Permanent Member: NAS/NAE/NRC (National Academy of Sciences) Advanced Intelligence Technology DIA / CIA TIGER Standing Commission: Technology Insight-Gauge, Evaluate, & Review, Division on Science and Engineering**

- **Member, Medical Subcommittee, Local Emergency Planning Committee, State of Michigan / Detroit Regional Homeland Defense/DHS**

- **Co-Hearing Officer, Independent External Review: New Mexico Public Regulation Commission, Managed Health Care Bureau**

- **Founder & Vice Chair: Center for Emergent Brain and Behavior Research**
- **Member of the Board: Thyogen, Ltd**

- **Member of the Science Advisory Board: The Harrington Group, Ltd**
- **Chairman of the Board and CEO: Med:For, Inc**
- **Member: Wayne State School of Medicine MRI Planning and Review Board**
- **Member of the Board: Spinal Injury Recovery Center DMC/RIM**

CERTIFICATIONS AND LICENSURES

Full and Unrestricted Current Licenses to practice Medicine and Surgery

State of Michigan #4301087789

State of New Mexico #79-166

District of Columbia #12109

Drug Enforcement Administration DEA # BG9132123 (D.C.)
Board of Pharmacy / DEA #5315026509 (MI)

Texas, Approved, Pending. State Board No. 3789, Texas, TP No. 28814
Texas Board of Examiners in the Basic Sciences: Certificate #28754,
1 February 1977.

Rotating externship/internship, Eastwood Hospital and Medical Center, El Paso, Texas 1977.

Permanent Diplomat ECFMG #271-4350

Diplomat of the Federation of State Medical Boards of the United States (FLEX).

Permanent Designate: Medical Officer U.S. Government, Regular, 0602 50 US Code 403J.

Clearances: CIA/DOD Top Secret/Special Intelligence/TK (SI/SAO) B, G, Q (1969 - Present).

CURRENT CLINICAL MEDICAL & INTELLIGENCE RESEARCH Clients:

Department of Defense, Central Intelligence Agency (CIA) , Defense intelligence Agency (DIA), National Academy of Sciences / National Research Council, General Motors, Ford, Del Harder Foundation, Fetzer Institute Inc , National Defense University, Georgia Institute of Technology, Harrington Group, Thyogen, Ltd., Institute for Advanced Physics at Austin, EarthTech Intl., Potomac Institute for Policy Studies.

SELECTED 2004-2007 PUBLICATIONS

- **L Hsieh, Y Chiang, FX Graydon, RA Young, CC Green, D Fitzgerald, S Macmillan, L Ash, and S Posse, "Neural correlates of event detection and distraction during a driving task using event related fMRI," *Cognitive Neuroscience* April 2004.**

- **Phan, K.Luan, Magalhaes, Alvaro, Ziemlewicz, Timothy J., Fitzgerald, Daniel A., Green, Christopher, & Smith, Wilbur. "Neural Correlates of Telling Lies: a Functional Magnetic Resonance Imaging Study at 4 Tesla *Acad Radiol* 2005 12:164-172.**

- **RJ Genik II, L Hsieh, and CC Green, Emergent Functional Brain Imaging and Rehabilitation Opportunities. In JM Pellerito (Ed.), *Driver Rehabilitation: Principles and Practice,* Elsevier, Chapter 25, 2005.**

- **RJ Genik II, CC Green, and RE Armstrong, "Cognitive avionics and watching spaceflight crews think: generation after next research in functional neuroimaging," *Aviation, Space, and Environmental Medicine*, June 2005.**

- **CC Green, RJ Genik II, and RE Armstrong, "Watching people think & scientific methods that may predict behaviors" in: Biotechnology Trends Relevant to Warfare Initiatives, pp. 75-84. In, *Avoiding Surprise in an Era of Global Technology*, Division on Engineering and Physical Sciences, National Research Council/National Academies Press, Washington, DC, May 2005.**

- **R.A. Young, L. Hsieh, F.X. Graydon, R.J. Genik II, C.C. Green, S.M. Bowyer, J. Moran, N. Tepley, "Mind-on-the-Drive: Real-time Functional Neuroimaging of Cognitive Brain Mechanisms Underlying Driver Performance and Distraction", *Proceedings of the Society of Automotive Engineering*, July 2005**

- **FX Graydon, RJ Genik II, MD Benton, RA Young, L Hsieh, and CC Green, "Visual event detection during simulated driving: identifying the neural correlates with functional neuroimaging *Human Brain Mapping* 2004, June 2004.**

- **FX Graydon, RA Young, MD Benton, RJ Genik II, S Posse, L Hsieh, and CC Green, "Visual event detection during simulated driving: identifying the neural correlates with functional neuroimaging," *Transportation Research Part F: Psychology and Behavior*, vol. 7,issues 4-5, July-Sept., pp. 271-286, 2004.**

- **Zimmerman, Kristin and Christopher Green, "Global Technology Transfer: Personal Experience from GM and the Private Sector" Chapter Six, pp. 67*ff* in: *Global Outsourcing Strategies* *An International Reference on Effective Outsourcing Relationships*, Gower Publishing Limited, June, 2006.**

- **Green, C.C *et.al. in: "*Critical Technology Accessibility" Division on Engineering and Physical Sciences, National Research Council *of* The National Academies of Science, 29 May, 2006 pp. 1-54**

PUBLIC POLICY CENTER (PPC) & GM ASIA PACIFIC (AP)
11/'99 – 02/'03

- Chief Technology Officer, Asia Pacific
- Executive Director Technology Policy, Public Policy Center
- Executive Director Regional Science & Technology, & Medical Director, Asia Pacific, General Motors Corporation, "Kit" Green was Executive Director for both Global Emerging Technology Policy (in GM's Public Policy Center) and also the Chief Technology Officer and Executive Director of Regional Science and Technology (for GM Asia Pacific Operations.)

His responsibilities included monitoring competitors' progress, and integrating findings/results into GM's global technology policy programs; overseeing technical transfer in the areas of alternative fuels and advanced vehicles; and leading medical, materials, manufacturing and environmental research in GM China, India, Korea, Singapore, and Israel satellite labs.

He managed formulation of Corporate Policy Directives in newly emergent issues of Driver Distraction, and Global Privacy. He championed AP regional operations for Health and Safety and Industrial Medicine, and numerous Occupational Medical research programs. The latter includes corporate activities in AP for HIV/Aids efforts in education and treatment.

He directed a new medical research program in Neuroimaging at the Brain Imaging Research Division of the Detroit Medical Center, in concert with the GM Foundation, and was the laboratory Founder, which he now heads. The program performs functional MRI research in driver distraction, emotion and cognition, social anthropology and cognition, and medication-performance related cognition.

GENERAL MOTORS BOARDS and STRATEGIC COMMITTEES [1985-2004]

- **Asia Pacific Strategy Board**
- **Advanced Technology Committee**
- **Chair, GM-China Tribology Consortium**
- **Co-Founder, GM-Israel Universal-Motors Technology Joint Venture**
- **Board of Directors, PATAC (Pan Asian Technology Automotive Center: GM – Shanghai Automotive) (Founder)**

- **PPC (Public Policy Center) Global Coordination Team**
- **Chair, AP (Asia Pacific) PPC – Government Relations Crisis Action Team**

- **GM RESEARCH & DEVELOPMENT AND PLANNING** 7/98 – 11/99
Executive Director, Technology Intelligence Warren, MI 48090-9055
Chief Technology Officer, GM Asia Pacific 7/98 - Present

As an Executive Director of Research and Planning, Dr. Green's principal areas of responsibility included the collection, analysis, and reporting of information from worldwide sources for the purpose of generating technology intelligence for GM's global operations. (As Chief Technology Officer for Asia/Pacific, Dr. Green now continues with expanded duties for GM and European technology deployment to GM Asia/Pacific Operations.)

GM RESEARCH & DEVELOPMENT CENTER 11/95 - 6/98
Executive Director, Materials Research & Technology Business Development
Chief Technology Officer, China/GMTC 10/94 - 6/98

This Directorate focused on advancing research for new materials, including polymers, metals and environmental applications, and utilizing physics and chemistry as core disciplines. The Directorate also managed and coordinated technology acquisition and deployment for corporate joint ventures. As CTO/China, Dr. Green managed and coordinated GM and European technology deployment to GM China Operations.

GM RESEARCH & DEVELOPMENT CENTER 10/93 -10/95
Director, Research Technology Partnerships

The Directorate coordinated, managed and initiated extramural research efforts with the Federal Government, Academia, and Industrial joint ventures. The programs included both direct funds-in and in-kind leveraged assets. The research portfolio intersected with GM core business needs and available technologies, and supplemented outside resources. The activities consisted of about $1B of projects.

GM NAO RESEARCH & DEVELOPMENT CENTER 3/85 - 9/93
Head, Automotive Safety and Health Research Warren, MI 48090-9055

Dr. Green directed the research and analysis activities of the independent department of Biomedical Science, housed in a modern 100,000-sq. ft. research facility. The department programs included both fundamental and applied research:

- Health Effects of New Manufacturing Materials
- Trauma and Toxicology: Forensic Applications
- Neurophysiology and Cardiovascular Injury
- Health Effects and Toxicology of Chemical and Biological Particulates and Aerosols
- Biotechnology Applied to Hazardous Material Control
- Crash and Blast Injury
- Stress/Hazard Protection of Operators in Certain Tactical Military Vehicle Operations
- Radiofrequency and Non-Ionizing Electromagnetic Radiation

80 physicians, pharmacologists, physiologists, physicists and engineers, toxicologists, microbiologists and biochemists conducted in-house research. The department also maintained an extensive extra-mural research effort with about one-dozen medical schools and private contractors worldwide.

CENTRAL INTELLIGENCE AGENCY 1969 - March, 1985
Langley, Virginia

Reporting to the Director of the Agency, Dr. Green was the Senior Division Analyst with the Office of Scientific and Weapons Intelligence. In this role he had multi-disciplinary research and management experience in medicine, comparative biology, bioengineering, animal and human physiology, endocrinology and the Life Sciences. Special areas of management experience included the direction of research of doctoral-level and physician scientists in the above areas as well as participation as senior analyst. His medical specialty is forensic medicine and toxicology, and his doctoral research work in neurophysiology concerned human Biochemical functioning of the brain. He maintains an active interest in cardiovascular physiology and sports medicine.

Dr. Green was an analyst with the Life Sciences Division, Chief of the Biomedical Sciences Branch/LSD, and Deputy Division Chief. He became a Senior Division Analyst with the newly formed Office of Scientific and Weapons Intelligence in 1978.

He is the author of over 50-peer-reviewed technical publications. Titles are available to persons with appropriate clearances upon request.

His primary responsibilities included serving as Chairman of the DCI Interagency Working Group on Chemical Weapons Use and assistance in preparing National Intelligence Estimates on that subject. Also, he was responsible for studies related to interagency issues in which life and physical sciences merge. He served as Chairman of the Ad Hoc Interagency Working Group on Soviet Submarine Drag Reduction Research and Development. Other interests in naval subjects have included his work on the Glomar Explorer project, diving physiology, and

submarine life support system. He also served as the Senior Medical Intelligence Officer on collection programs involving naval surface and undersea platforms.

Continuing forensic medical interests include study of chemical weapons and attempts to determine, from medical symptoms and sample analysis, new agents being used by the Soviets and their surrogates. Dr. Green has also been responsible for evaluations of other forensic issues such as the use of novel techniques for assassination by Soviet and Bulgarian services, and several narcotics issues.

EDUCATION

Northwestern University	BA, 1962 (Pre-Med)
University of Colorado Medical School	Ph.D., 1969 Neurophysiology
Autonomous City University El Paso, Texas/Monterey, Mexico (U.S. DHEW-HHS MD/PhD. Program)	Doctor of Medicine (Honors) 1976

PROFESSIONAL MEMBERSHIPS, FELLOWSHIPS AND AWARDS

- Fellow, American Academy of Forensic Sciences
- International Society for Magnetic Resonance Imaging, Member
- International Forensic Medical Reference Organization, Member
- Washington Blue Book
- Sigma Xi, Life Member
- American Men of Science
- New York Academy of Sciences, Life Member
- Marquis Who's Who in the Midwest
- West's Who's Who in Medicine

EXTERNAL MEDICAL / SCIENTIFIC BOARDS & ACTIVITIES

- Founding Member: Asian Institute of NanoBioScience and Technology, Pusan National University, Korea
- Director: Institute of Chemical Toxicology
- Director: IMI, Inc (Australia)
- Director: COMIX, Ltd. (Australia)
- Director: Hemokinetics, Inc. (Founder)
- Director: Science Board, Ferrofluidics Corporation
- Director: Cobra Biotechnology, Inc.

- Director: Chairman and President: Med: For, Inc.
- Director: LEADS, Inc.
- Director and Chairman of the Board:
  Occupant Safety Research Partnership, USCAR (1994-1998)
- Director and Secretary: American Spinal Injury Foundation (1988-1995)
- Chairman: Science Advisory Board, National Institute for Discovery Science (1995-1999)
- Chairman: National Academy of Science/National Research Council Committee on Biotechnology in the Year 2020 (STAR/BAST) (1989-1992)
- Chairman: Board on Army Science & Technology/National Research Council (1990-1999)
- Chairman: Independent Science Panel, Office of the Undersecretary, Operations Research, DO Army (1989-present)
- Chairman: Board of Army Science & Technology, NRC, National Academy of Science 1997-1999 (Member since 1988)
- Vice-President: General Motors Cancer Research Foundation
- Member: Air Force Studies Board on Research & Development (1995-1997) study on Next Generation Air Force Technology
- Vice-Chair: Technology Subcommittee Commission on Environmental Science & Technology, National Academy of Sciences, NRC (1996-1998)
- Member: Board of Directors, America-Israel Chamber of Commerce of Michigan (1995-1998)
- Member: Board of Directors, General Motors/United Motors Israel, Ltd. Technology Research & Development Joint Venture
- Member: Committee for Frontier Medicine, Fetzer Institute (1995-1998)
- Member: Health Resources Management, Inc., Science Advisory Board
- Member: Association of Military Medical Advisors of the Armed Forces
- Member: Army Science Board 1985 – 1995
- Member: Mosher Institute for Defense Studies Board 1985 – present
- Member: Air Force Research Management Committee (1998-1999)
- Member: National Academy of Science/Institute of Medicine Commission on Persian Gulf Mystery Illness 1998
- Scientific Advisor: Directorate of Intelligence, Central Intelligence Agency
- Scientific Advisor: Arms Control and Disarmament Agency
- Anthrotronix: Science Advisory Board 2001 – present
- Member: Harrington, Ltd. Science Board 2004-2007
- Member: International Society for Magnetic Resonance in Medicine 2003-#46523

Dr. Green is the holder of the President's National Intelligence Medal, awarded in 1985, for his work on a project from 1979-1983.

Examples of his non-General Motors, pre-1985 professional activities of relevance include:

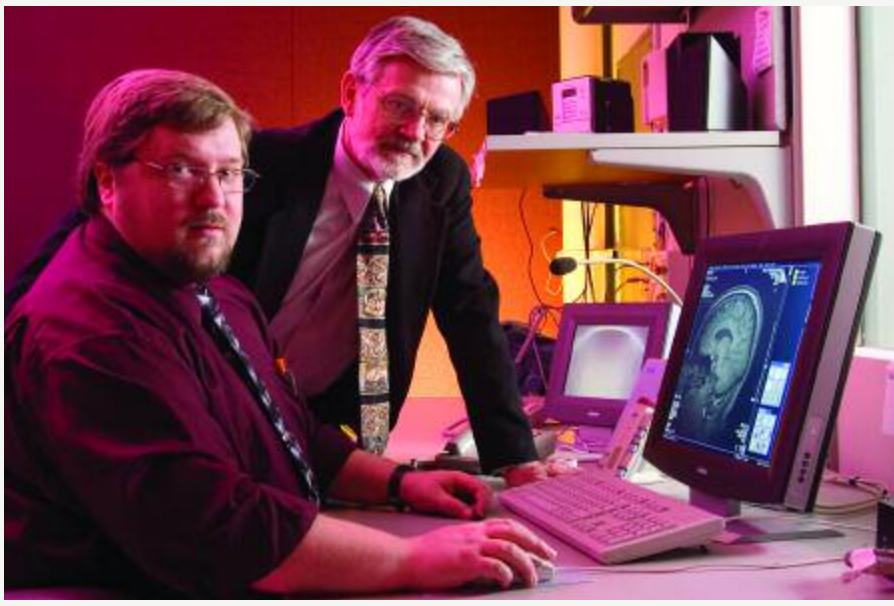
- Direction of in-house and contractor personnel to analyze Soviet manned spaceflight and biological satellite research.
- Direction of the medical collection portion of a large national undersea research program (1974-1977).
- Integrating state-of-the-art bioengineering equipment in technical collection missions involving man placed in extreme environments (1977-1985).
- Serving as Life Science space reconnaissance officer to the national space tasking effort (1969-1979).
- Representing the National Foreign Assessment Center as a member of the US-USSR radiation warfare backstop committee of the Department of State/ACDA (1976-1979).
- Manager of an analytical effort in support of the Apollo-Soyuz Test Project (1973-1975).
- Head of the Biomedical Sciences Working Group under the GMIS/USIB (1972-1976).
- Design and promotion of inter-agency marine biological R&D effort including extensive coordination with the Under-Secretary of the Navy for Research and ultimate direction of a joint extramural research effort (1974-1976).
- Conceptualization and organization of an inter-agency working group to make use of highly technical collection systems against the problem of African locust infestation to predict current and future course and extent of destruction (1978).
- Conceptualization and direction of an analytical team to use the systems dynamics model applied to food versus population versus nutritional status in denied countries (1975-1977).
- Establishment of inter-agency program to examine data on non-ionizing electromagnetic radiation including foreign equipment and devices. Direction of research program to evaluate biological effects of microwaves from certain devices. Coordination of inter-agency health physics team (1973-1976).
- Development of inter-agency research program using Department of Navy assets to study bionic application of marine mammal R&D in a foreign country (1972-1975).
- Medical officer responsible for reviewing life-support System requirements and hazard analysis of human subjects during various collection operations (1975-present).

TECHNICAL AND MANAGEMENT TRAINING (Pre Senior Management, GM)

American Chemical Society: Chemical Mechanisms in Toxicology (1991)
Deloitte & Touche: Advanced Government Contracting (1991)
American Management Association: Finance and Accounting for the Non-Financial Executive (1987)

Industrial Research Institute Course: Project Selection and Termination (1986)
Industrial Research Institute Course: Project Initiation and Control for Senior Industrial Research Managers (1985)
Executive Development Program: A three-month intensive review of current perspectives in government and private industry; for the most senior graded officers in the Executive Branch (1979)
Defense Industries Management: A six week program conducted by senior managers of selected space systems, aircraft, naval ship production and land arms contractors for certain government technical officers (1978)
Mid-Career Management: A six-week training course on new techniques in management including MBO, O-based budgeting, and leadership styles (1974)
Advanced Management Program: An eight-week course in contract and personnel management disciplines (1973)
Space Research Technology: A six-week review of overhead R&D programs in Department of the Air Force (1972)
Advanced Nuclear Weapons Design DASA/Sandia: (1972)
Fundamentals of Scientific Contract Management: A three-week course (1972)
Space Science Operations: A one-week review of overhead systems capabilities for senior technical officers (1971)
Science and Technology in the Executive: A six-month program to survey all space-related R&D programs (1971)

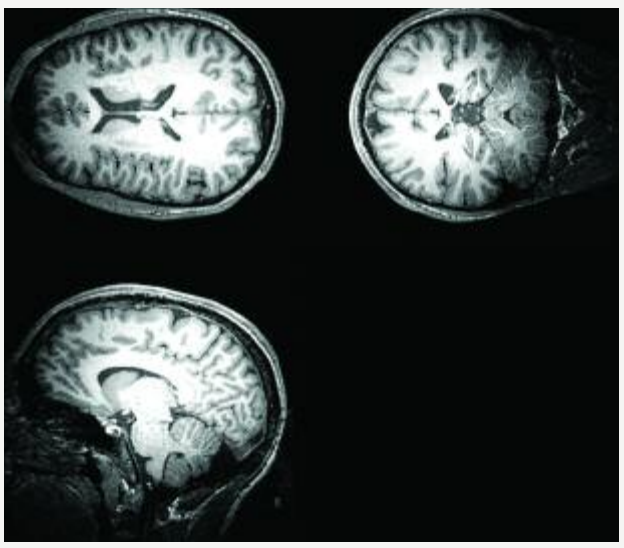
Generation-after-next technology explores the person within the brain



Drs. Genik and Green predict the future direction of science.

Most academic scholars focus on generating evidence to support a hypothesis. The Emergent Technology Research Division operates differently. This division generates the hypothesis itself and looks decades ahead of what is currently available to envision possibilities yet unexplored. It takes current technology resources and dreams big—making predictions and taking bold leaps to guess at the next generation of untapped ideas and tools.

At the moment, emergent technologies experts at WSU are looking directly into people's brains to learn very specific things about how they think and behave. Using special tools and approaches, they can see precisely how people make decisions under stress, how they assess morality, whether or not they'll have psychotic episodes if isolated or confined, how many tasks they can handle physiologically as drivers, how pilots multi-task, whether biosensors can help screen for terrorist activity, and how to tell with certainty whether or not someone is lying.



Amazing detail of the brain from the 4 Tesla MRI.

Is this space-age science? Absolutely, says Christopher (Kit) Green, M.D., Ph.D., executive director of Emergent Technology Research whose diverse training is rooted in forensic medicine, radiology, engineering mechanics and the Central Intelligence Agency. With functional magnetic resonance imaging (fMRI) as its major tool-of-the-moment, Dr. Green and his colleagues are working on projects for clients including the U.S. Department of Defense, National Academy of Sciences, General Motors, Thyogen, Ltd., and other private corporations. For very different reasons, these clients are interested in real-time brain imaging to "explore the person within the brain," Dr. Green said.

The value of fMRI technology is this: it instantly shows tiny metabolic changes in activated areas of the brain. Wayne State's 4-Tesla magnet, the highest field MRI in the state, and one of only 10 in the country, is capable of measuring more than 40 chemicals in the brain with the greatest precision and accuracy available to-date.

Most researchers using highly-sensitive fMRI are looking at isolated, specific things like the location of an epileptic seizure or the extent of brain damage after a stroke or to confirm degenerative brain function in Alzheimer's disease. "We are exploring the whole person," said Dr. Green.

The division began in 2003 with a grant from General Motors to establish the Transportation Imaging Laboratory. "We watch how people think and react when they drive. We watch them make decisions and see where in the brain stimuli are registered and acted upon. We are learning how drivers deal with distractions, what types of warning signals are useful in vehicles, and how eye movement, tracking and driver response are cognitively regulated. We take into account, not just the physiological issues involved in driving, but the mental state, the dynamic conditions, the surroundings and other issues related to the 'whole person.'"

This ability to see what happens in a person's mind—not just their brain—prompted Dr. Green and colleagues to expand the division. The interdisciplinary nature of the hypothesis-generating approach has led to multidepartmental affiliations with the medical school through the Office of the Associate Dean for Research, Daniel Walz, Ph.D., and an affiliation with the Detroit Medical Center through the office of the Corporate Director, Planning and Future Studies, David Ellis. In addition to the original laboratory dedicated to transportation research, the Government Systems Lab researches new technologies for terrorist screening and other homeland security applications, and the Social and Cultural Systems Lab investigates issues like mind development through Buddhist meditation and which neural substrates are excited by violent lyrics in music.

Richard Genik, II, Ph.D., director of the Emergent Technology Research Division, and key physicist running the operation, illustrates the leap from current knowledge to generation-after-next research. From their driver distraction work with automotive companies was born a proposal to measure psychosocial health for astronauts in pre-flight training operations and in space. "We can take what we already know about cumulative stress, driver training and decision-making and then design testing modules to prepare space crews for missions that are predicted to be one-to-two years in duration," Dr. Genik said.

"Watching spaceflight crews think can reveal the efficiency of training procedures. Moreover, observing subcortical emotion centers may provide early detection of developing neuropsychiatric disorders. Astronauts push the envelope of cumulative stress which normal humans can be expected to absorb. Our monitoring systems could prevent dangerous conditions before they result in performance degradation that could increase the risk of human error," Dr. Genik said. They are now discussing their ideas with the National Defense University in Washington, D.C.

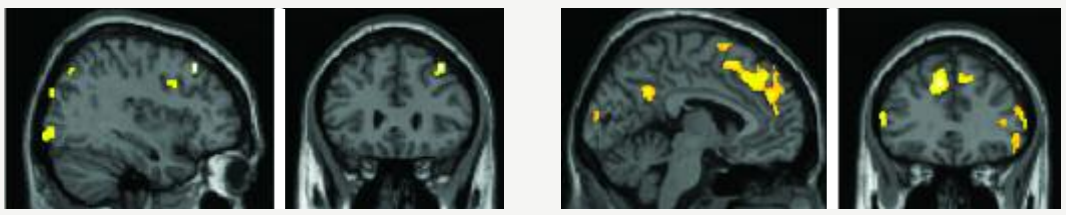
Also under review is a proposal for the Michigan Technology Tri-Corridor (Michigan Life Sciences Corridor) to fund a sophisticated biosensing system that could be installed in airports to passively screen passersby and red-flag suspicious readings that could be linked to terrorist activity, chemical agents or even SARS or other epidemic disease transmission.

According to Dr. Green, infrared biosensors could automatically record the body temperature and heart rate of people passing by. Medical evidence already confirms that people who are lying, anxious or sick with the flu have elevated temperatures and heart rates. "If a group of people get off a flight from China with elevated body temperatures, it might be cause for additional scrutiny," Dr. Green said. "That's a non-malicious threat to public health that we could immediately prevent."

The technology also applies to contrived terrorist plots. Dr. Green once ran the CIA's polygraph testing unit, so he is aware of precise changes in a person's body as he or she tries to conceal information or deceive. He knows what nonverbal cues suggest suspicious activity. "Cameras and infrared biosensors at international ports could help officials spot trouble," Dr. Green said. "We already know the technology works. It seems to be a fiscally responsible way to invest in prevention."

Winners of the homeland security grants are expected to be announced this spring. In any case, however, all these projects give us further insight into the mind, "which is what the brain does," Dr. Green said. Additionally, all this information contributes to more traditional translational medical research related to traumatic brain imaging, neurologic conditions, hot flashes, cancer and psychiatric illnesses, as well.

Regarding return on investment, the Emergent Technology Research Division boasts 100 percent growth its first year and 200 percent growth its second year. "Generation-after-next fMRI imaging tools promise to deliver deep-brain monitoring and rapid advances into our knowledge of how people think and act. There's no end in sight for this type of immediate and practical knowledge," Dr. Genik said.



From recent PET & NIRS experiments, it is known what parts of the brain cortex process familiar versus new information. The superior frontal gyrus and cingulate are more greatly activated when incorrect or hidden choices are selected. In these recent experiments, the experimenter was "blind" to the results, but able to tell, in real-time, that an incorrect pattern was chosen. The truth is on the left and the lie is on the right.