

CURRICULUM VITÆ

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Date of Birth: June 16, 1956

Place of Birth: St. Paul, MN

Home Page: <http://www.brainmapping.org/MarkCohen>

EDUCATION:

1985 Ph.D.	The Rockefeller University, New York, NY (Neurobiology and Behavior)
1979 A.B.	Stanford University, Stanford, CA
1974-1976	Massachusetts Institute of Technology

ACADEMIC APPOINTMENTS:

All current UCLA appointments are as Professor in Residence

2011 -	Member, California NanoSystems Institute
2009 -	Biomedical Engineering, Field Chair in Image Acquisition and Analysis
2005 -	Director UCLA/Semel Neuroimaging Training Program
2004 -	Psychology, UCLA College of Arts and Sciences
2001 -	Psychiatry and Biobehavioral Sciences, UCLA School of Medicine
2001 -	Biomedical Physics, UCLA School of Medicine

1994 -	Neurology, UCLA School of Medicine
1994 -	Radiological Sciences, UCLA School of Medicine
2001-	Professor in Residence, UCLA School of Medicine
1993-2001	Associate Professor in Residence, UCLA School of Medicine
1992-1993	Assistant Professor, Harvard Medical School, Boston, MA
1990-1991	Instructor, Harvard Medical School, Boston, MA

HOSPITAL APPOINTMENTS:

1993-	Director of MRI Activation Imaging UCLA Division of Brain Mapping
1991-1993	Director of MR Education Massachusetts General Hospital, Boston, MA
1990-1993	Director, Hyperscan Imaging Laboratory Technical Director of Clinical MR Massachusetts General Hospital, Boston, MA

OTHER PROFESSIONAL POSITIONS:

1988-1990	Senior Applications Scientist, Advanced NMR Systems, Inc.
1985-1988	MR Applications Scientist, Siemens Medical Systems, Inc.

MEMBERSHIPS, OFFICES & COMMITTEE ASSIGNMENTS IN PROFESSIONAL SOCIETIES:

1994-1997	Annual Meeting Program Committee, Publications Committee, Workshop Committee, External Relations Committee, Meetings Coordination Committee, Efficacy Committee; Society of Magnetic Resonance
1994-1997	Board of Directors; Society of Magnetic Resonance
1994-1997	Chairman, Education Committee; Society of Magnetic Resonance
1993-1998	Associate Editor; Journal of Magnetic Resonance Imaging
1993-1997	Board of Directors; Society for Magnetic Resonance Imaging
1992-1997	Education Subcommittee; Society of Magnetic Resonance in Medicine
1992-1994	Efficacy Committee; Society for Magnetic Resonance Imaging
1990-1998	Editorial Board; Journal of Magnetic Resonance Imaging
1986 -	International Society of Magnetic Resonance in Medicine
1980 -	Society for Neuroscience
1979-1984	Acoustical Society of America
1979-1984	American Physics Association
1979 -	American Association for the Advancement of Science
1994 -	Organization for Human Brain Mapping
2002 -	Medical, Scientific, & Technology Advisory Board for the Institute for Magnetic Resonance Safety, Education, and Research (IMRSER)

MAJOR RESEARCH INTERESTS:

1. Functional MR Imaging of Brain Activity
2. High Speed Magnetic Resonance Imaging Applications & Techniques
3. Mental Imagery
4. Multi-modal imaging
5. Brain Activation in Drug Abuse
6. Epilepsy
7. Hypnosis
8. Attention Control

FORMAL TEACHING EXPERIENCE (SELECTED):

- | | |
|-----------|---|
| 2009 | Field Chair, “ <i>Biological Signal and Information Processing</i> ,” Biomedical Engineering IDP |
| 2009 | Course Director, “ <i>Functional Neuroimaging</i> ” (M285), UCLA |
| 2009 | Course Director, “ <i>Experimental Studies of Consciousness</i> ,” NS215, UCLA |
| 2007 - 11 | Course Director, “ <i>Principles of Neuroimaging</i> ” (M284A/B), UCLA |
| 2007 - 11 | Course Director, “ <i>Advanced Neuroimaging Summer School</i> ”, UCLA |
| 2006 - 11 | Program Director, “ <i>Neuroimaging Training Program</i> ” NIH-sponsored program. |
| 2005 | Course Co-Director, “ <i>Current Debates and Recent Advances in fMRI</i> ”, International Society for Magnetic Resonance in Medicine, Miami, FL |
| 2005 | Course Director, <i>NeuroEngineering</i> (M206), UCLA |
| 2004 | Course Co-Director, <i>Functional Neuroimaging</i> , UCLA |
| 2004 | K30 Course in Brain Mapping for Translational Investigators, UCLA |
| 2003 | Course Co-Director, <i>Functional Neuroimaging</i> , UCLA |
| 2003 | Course-Co-Director, “ <i>FSL/FreeSurfer</i> ”, UCLA and Oxford University |
| 2003 | Neuroengineering Core Course – Instructor, UCLA |
| 2003 | K30 Course in Brain Mapping for Translational Investigators, UCLA |
| 2002 | fMRI in Neurorehabilitation, - Instructor, UCLA |
| 2001 | Course Co-Director, <i>Functional Neuroimaging</i> , UCLA |
| 2001 | Course Director, <i>Advanced Magnetic Resonance Imaging</i> , UCLA |
| 2000 | Course Co-Director, “ <i>Mental Imagery</i> ”, UCLA |
| 1999 | Course Director, <i>Advanced Magnetic Resonance Imaging</i> , UCLA |
| 1998 | Course Director, <i>Functional Neuroimaging</i> , UCLA |
| 1998 | Course Director, <i>Advanced Magnetic Resonance Imaging</i> , UCLA |
| 1998 | Course Director, <i>Introduction to 'C' Programming</i> , UCLA |
| 1996 | Course Director, <i>Functional Neuroimaging</i> , UCLA |
| 1995 - | Course Director, <i>Journal Club</i> , UCLA |
| 1995 | Lecturer, <i>Human Brain Mapping: The Methods</i> , Cold Spring Harbor Laboratory |
| 1995 | Course Director; <i>Advanced Magnetic Resonance Imaging</i> , UCLA |

- 1995 Guest Lecturer; Psychiatry 446 "*Neuroimaging for the Neuropsychologist*,"
UCLA Department of Psychiatry
- 1993 Course Director; *MR Pulse Sequence Design*, Society for Magnetic Resonance
Imaging
- 1992-1993 Faculty; Speech and Hearing Sciences Graduate Program MIT and Harvard
- 1992-1993 Course Director; *MGH-MRI Post Graduate Course*, MGH
- 1991 Co-director; *Clinical MRI: 1991 Update* MGH
- 1990-1993 Course Director; *MRI for Poets*, MGH
- 1990-1993 Co-director; MR Visiting Fellowship Course, MGH
- 1986-1988 Guest Instructor; MR Training Course, Alton Ochsner Clinic

OTHER TEACHING EXPERIENCE:

Individual course development and training for physicians & scientists at numerous MRI sites.

Conference co-organizer, "*Machine Learning and Interpretation in Neuroimaging*." Sierra Nevada, Spain, 2011

Organizer and Program Director of the International Conference, "*Functional Neuroimaging: Looking at the Mind*", Boston, 1992

THESIS COMMITTEES

UCLA

COMPLETED:

Dr. Ariana Anderson (chair)
Dr. Peter Bachman
Dr. Jennifer Bramen (chair)
Dr. Pamela Douglas (co-chair)
Dr. Richard DuBois (chair)
Dr. Anita Dushyanth
Dr. Chris Furmanksi
Dr. Robin Goldman (chair)
Dr. Samuel Harris (chair)
Dr. Alex Korb
Dr. Angela Knox
Dr. James Kroger
Dr. Doris Payer
Dr. Angela Rizk-Jackson
Dr. Debra Strick (chair)
Dr. David Wozny (co-chair)
Dr. Naomi Santa Maria

University of Southern California

Dr. Edward Vessel

IN PROCESS or UNCOMPLETED

Mr. Tavis Allison (uncompleted)
Ms. Xia Hongjing (in process, chair)
Mr. Wei Li (in process, chair)
Mr. Robert Terwilliger (uncompleted)
Ms. Dianna Han (in process, co-chair, UC Santa Barbara)
Mr. Wesley Kerr (in process, chair)
Ms. Mahsa Malekmohammadi (member)

POST-DOCTORAL FELLOWS (UCLA)

Dr. Jianxin Wang – Presently employed in computer science in private sector
Dr. Yong Ke – Presently, Instructor in Psychiatry, Harvard Medical School
Dr. David Glahn – Presently Assistant Professor of Psychiatry, University of Texas
Dr. Ariana Anderson – *current trainee*
Dr. Wilfred Gordon
Dr. Agatha Lenartowicz – *current trainee*
Dr. Pamela Douglas – *current trainee*

UNIVERSITY COMMITTEES

2001 – 2002 Medical Investigational Review Board

2006 Neurosciences IDP Admissions Committee
2011 Council on Research

SELECTED INVITED PRESENTATIONS (UPDATED 5/2009):

- 1988 Grand Rounds, Dept. of Radiology, Washington University School of Medicine, “*Methods of Fast MR Imaging*” St. Louis, MO
- 1989 Grand Rounds, Department of Radiology, “*Rapid MR Imaging: Techniques and Performance Characteristics*”, University of San Francisco. San Francisco, CA
- 1990 Society for Magnetic Resonance Imaging, Plenary Lecture, “*Ultra-fast Imaging*”, Philadelphia, PA
- 1990 BioElectroMagnetic Society 13th Annual Conference. Invited Lecture: “*Peripheral Nerve Stimulation by Time-Varying Magnetic Fields*” San Antonio, TX
- 1991 Magnetic Resonance Imaging: A short course trio. “*High-speed and Real-time Imaging*” and “*MR Imaging of Perfusion and Diffusion*” Philadelphia, PA
- 1991 New York Academy of Sciences Conference: Biological Effects and Safety Aspects of Nuclear Magnetic Resonance Imaging and Spectroscopy, invited lecture: “*Evidence of Peripheral Nerve Stimulation by Time-Varying Magnetic Fields.*” Bethesda, MD
- 1991 International Symposium of Magnetic Resonance Imaging in Medicine. “*Approaches to High-speed MR Imaging & Applications of High-speed and Instant Imaging*”, National Yang-Ming Medical College, Taipei, Taiwan
- 1992 American Epilepsy Society “*Functional Magnetic Resonance Imaging of the Human Brain*” Seattle, WA
- 1992 Advanced Clinical Magnetic Resonance Imaging, “*Ultrafast Imaging – Principles*” and “*Echoplanar Imaging – Clinical Experience*”, Kona, HI.
- 1993 American College of NeuroPsychopharmacology, “*Practical Aspects In the Design of Mind Reading Instruments*”, Honolulu, HI
- 1994 National Institutes of Health: NIMH Special Lecture: “*Principles and Applications of Functional MRI*”, Bethesda, MD
- 1994 Grand Rounds, Dept. of Radiology, Washington University School of Medicine, “*Principles and Applications of functional MRI*” St. Louis, MO
- 1994 Grand Rounds, Dept. of Neurology, “*Functional MRI: A new method for interrogating brain function.*” University of Texas, Houston, TX
- 1994 American Academy of Neurology, “*Functional MRI and Advanced MR Techniques*” Boston, MA
- 1994 Nottingham Symposium on Magnetic Resonance in Medicine, “*Advances in the Study of Brain Function Through Rapid Magnetic Resonance Imaging*”, Nottingham, UK
- 1994 Advances in Brain Tumor Management, “*Brain Mapping – MRI*”, Las Vegas, NV
- 1995 21st International Epilepsy Congress, “*Observing Brain Activity with Functional Magnetic Resonance Imaging: Techniques and Results*” Sydney, Australia,
- 1995 Neuroimaging and the Cognitive Neuroscience of Schizophrenia, “*Where the Voices Come From: fMRI of Schizophrenic Hallucinations*”, Carmel, CA
- 1996 American Academy of Neurology, “*Rapid MRI & Functional Applications*” San

- Francisco, CA
- 1997 20th annual meeting of Japan Society for CNS Computed Imaging “*Practical Aspects in fMRI*”, Kyoto, Japan
- 1997 Hyogo Neuroimaging Conference “*Mental Rotation Studied by fMRI*”, Kobe, Japan
- 1997 Special University Lecture “*Practical Aspects in fMRI*”, Tsukuba, Japan
- 1997 Grand Rounds, Radiology, Tokyo University, “*Advances in High Field MR Imaging*” Tokyo, Japan
- 1997 Special Lecture, Ika-Shika University, “*Where the voices come from: Imaging of Schizophrenic Auditory Hallucinations*” Tokyo, Japan
- 1997 Society of Cerebral Blood Flow and Metabolism, “*fMRI Issues and Answers*”
- 1998 Society for the Social Studies of Science, “*Image and Logic – Perspectives of an Imager*”, Halifax, Nova Scotia, Canada
- 1999 Mental Illness Research Education and Clinical Center Scientific Retreat, “*Functional MRI: What does it Offer? What are its Limitations?*” San Diego, CA
- 2000 Neurology/Radiology Grand Rounds, “*The Autocerebroscope – an update*” Vancouver, CA
- 2000 Special seminar, “*Analysis Methods in fMRI*”. UCSD
- 2000 First Shanghai International Workshop on Functional Neurosurgery and Imaging. “*Functional MRI: Tools for Epilepsy; Mental Imagery*” Shanghai, China
- 2001 Special seminar. “*Technical Considerations In the Design of Mind Reading Instruments*”. UC Irvine
- 2001 Plenary Lecture. “*Practical Aspects In the Design of Mind Reading Instruments.*” American Society for Neuroradiology. Boston, MA
- 2002 International Seminar on EEG dipole tracing and fMRI, “*Simultaneous Imaging for Tomographic Electrophysiology.*” Tokyo, Japan.
- 2002 Neurorehabilitation, “*Functional MRI in Assessment of Motor Function*” Honolulu, HI
- 2002 Office of National Drug Control Policy Demand Reduction Symposium, “*Integrated Functional Imaging and Neurophysiology: Applications to Drug Abuse Research*” Boston, MA
- 2002 Special Lecture “*Combining Electrophysiology and Imaging*” Stanford University
- 2002 Radiology Grand Rounds “*Combining EEG and functional MRI: Why and How*” New York University Medical School. New York, NY
- 2003 International Society for Magnetic Resonance in Medicine. “*Neuronal anatomy and Electrical Activity*”, Toronto, Canada
- 2003 Brain Research and Development, International Seminar on EEG dipole tracing and fMRI. “*Advances in combined EEG and fMRI*”, Tokyo, Japan.
- 2003 National Institute on Neurological Disorders and Stroke, “*fMRI and EEG*”, Bethesda, MD
- 2003 Art and the Brain “*Seeing (and) the brain*” Los Angeles, CA
- 2003 Cuban Neuroscience Center, “*Simultaneous Imaging for Tomographic Electrophysiology: Implementation and Applications*”, Havana, Cuba
- 2003 Organization for Human Brain Mapping Satellite Symposium on EEG-Correlated fMRI,

- “Simultaneous imaging for tomographic electrophysiology: Efficient tools of acquisition and analysis”*, New York, NY
- 2004 Brain Mapping for Translational Investigators. *“Fundamentals of functional MRI.”* Los Angeles, CA
- 2005 Calculating Images: Representation by Algorithm in Science and Art. *“Seeing (and) the Brain”* Santa Barbara, CA
- 2005 Southern Epilepsy & EEG Society and Western Clinical Neurophysiology Society Joint Annual Meeting. *“fMRI-EEG: Is this the next Pandora's box?”* Scottsdale AZ
- 2005 International Society for Magnetic Resonance in Medicine, *“Neural Signaling and fMRI Signal Detection.”* Miami, FL
- 2005 Congresso Brasileiro de Neuroimagem Funcional. *“Recent advances in combined EEG-fMRI”* Riberão Preto, Brazil.
- 2005 Magnetom World Congress *“Advances in Neuroimaging at High Field”*, Singapore
- 2005 Rochester Center for Brain Imaging, *“Emerging Technologies in functional Neuroimaging”*, Rochester, NY
- 2005 EEG and Biofeedback, UCLA, *“On the Origin of Oscillatory Electrical Signals in the Brain,”* Los Angeles, CA
- 2005 UC San Diego, *“Integrative Methods in Functional Neuroimaging: fMRI, EEG and ... ?,”* San Diego, CA
- 2005 International Society for Magnetic Resonance in Medicine, *“Current Debates and Recent Advances in fMRI.”* Miami, FL
- 2006 Hong Kong Polytechnic University, Inauguration Year Lecture, *“Multiscalar Neuroimaging: Higher Resolution in Space and Time”* Hong Kong
- 2006 Princeton University, *“Multiscalar Neuroimaging: Higher resolution in space and time”*, Princeton, NJ
- 2006 International Society for Magnetic Resonance in Medicine, *“Real-time Neuro MRI”*, Seattle, WA
- 2006 University of South Carolina, *“Studying Human Brain Activity at Multiple Scales of Space and Time,”* Columbia, SC
- 2006 University of South Carolina, *“fMRI: Testing the Spatiotemporal Limits,”* Columbia, SC
- 2006 University of Texas San Antonio, *“Pushing the Limits of Space and Time in Functional Imaging”*, San Antonio, TX
- 2006 Department of Biomathematics Seminar Series, *“fMRI: Testing the Spatiotemporal Limits”*, UCLA, Los Angeles, CA
- 2006 FSL Training Program, *“MRI Basics,”* Siena, Italy
- 2007 Brown University *“Multi-scalar Probes of Human Brain Function”*, Providence, RI
- 2007 Brown University *“Multi-scalar Neuroimaging”*, Providence, RI
- 2007 University of South Carolina, *“Images at the Nanoscale,”* Columbia, SC
- 2007 Universitätsklinikum Schleswig-Holstein, *“Physical background of fMRI: echo-planar imaging (EPI) techniques and other technical issues,”* Kiel, Germany.
- 2008 National Academy of Sciences, American Institute for Medical and Biomedical Engineers, *“The Uses of Portable Ultra-Low Field MR Imaging Devices,”* Washington, DC
- 2008 Institute for Pure and Applied Mathematics, *“Simultaneous EEG and fMRI Acquisition – Algorithmic Analysis,”* UC Los Angeles, CA

- 2008 Organization for Human Brain Mapping, “Combining EEG and fMRI,” Melbourne, Australia
- 2009 FSL Training Program, “Physical Basis of MRI and fMRI,” Brisbane, Australia
- 2009 Organization for Human Brain Mapping Satellite Symposium on EEG Methods and Practice, “EEG and fMRI: A Look Forward,” San Francisco, CA
- 2009 Organization for Human Brain Mapping, “The technologies of Multi-modal Imaging” San Francisco, CA
- 2009 Asilomar conference on Signals, Systems and Computers, *Electricity and Magnetism Two views of the brain in action*
- 2009 Society for Psychophysiological Research, “Approaches to the Joint Analysis of EEG and fMRI Data: Methods and Early Results”, Berlin, Germany
- 2010 Organization for Human Brain Mapping. “EEG-fMRI: Principles & Ideas.” Barcelona, Spain
- 2010 Yom Limmud Special Lectures. “The Brain, the Mind, and the Structure of its Beliefs.” Leo Baeck Temple, Los Angeles
- 2010 Cedars Sinai Medical Center Grand Rounds, “Decoding Brain Signals using Combined EEG and fMRI”, Los Angeles, CA
- 2011 UCLA Neurology Grand Rounds, “Manganese-induced Parkinsonism: Toxicological findings and public health.” Los Angeles, CA

REGULAR REVIEWER FOR:

National Institutes of Health and National Science Foundation Study Sections..... 1994-2009
UC Discovery Grant Study Sections2008, 2009
Academic Radiology Brain
J. Cognitive, Affective and Behavioral Neuroscience European Journal of Neuroscience
Human Brain Mapping IEEE Transactions in Medical Imaging
J. Magnetic Resonance Imaging Magnetic Resonance in Medicine
Medical Physics Nature Neuroscience NeuroImage
Neurology Neuron NeuroReport
Science

ADVISORY BOARDS:

- Institute for Magnetic Resonance Safety, Education and Research
- Stanford University Center for Advanced Magnetic Resonance Technology
- General Electric Medical Systems High Field MRI
- UC San Diego HIV Neurobehavioral Research Center
- UCSD CNS HIV Antiretroviral Therapy Effects Research Center

FORMAL MRI CONSULTING ACTIVITIES (partial):

General Electric Medical Systems	1994-2000
Resonance Technology Corporation.....	1993-present
Alfred E. Mann Foundation	2000
University of Oregon	2000
Varian Instruments.....	2000-2002
Medical Imaging of Santa Monica.....	2002-present
University of Wisconsin	2003-2004
Gamma Medica	2004
O’Melveny and Myers (legal).....	2004

ACTIVE

As PI

4 R33 DA026109-3 (Cohen) 07/01/2010 – 06/30/2013 3 calendar
 NIH \$1,592,816

Real-Time Automated Detection of Craving States with fMRI and EEG

The goal of this project is to develop, characterize and validate a method of real-time detection of cognitive states relevant to the study of drug abuse using concurrent electrophysiological recordings, first to enhance the state discriminations and, later, to serve potentially as a proxy for the neuroimaging brainstate data.

1T90DA22768 (Cohen) 09/1/2011 - 08/31/2016 .24 calendar
 NIH \$1,850,400

Comprehensive training in Neuroimaging Fundamentals and Applications

The major goal of this study is to provide two years of training to graduate students in the fundamentals and applications of neuroimaging. Students in the NITP complete a year of graduate training in the Neurosciences, including fundamentals of Neuroanatomy, Systems Neuroscience, Neurophysiology and/or Cognitive Neuroscience, followed by a second year of graduate training which entails an intensive program in the tools of neuroimaging, including acquisition, data processing, analysis and experimental design.

As Coinvestigator

1R21RR026238-01 (Hahn, Cal Inst. of Technology) 9/15/2010 – 6/30/2013 Effort as needed

A new Ultra-low field in-vivo EPR technology for biomedical applications

Using superconducting quantum interference detection in a low magnetic field we are performing electron spin resonance imaging experiments at energy levels compatible with in-vivo human imaging, a technique heretofore impossible. EPR has the advantage of superior chemical resolution and sensitivity/

1 P50 MH077248-01 (McCracken) 9/01/2005-8/30/2011 1.57 calendar

NIMH \$1,233,777

CIDAR: Translational Research to Enhance Cognitive Control (TRECC)

The major goal of this CIDAR is to conduct translational research to examine brain circuit and pharmacology involved in attention deficit/hyperactivity disorder (ADHD) and chronic tic disorder (CTD).

R01 MH43292 (Green) 05/01/2006-04/30/2011 .98 calendar

NIMH \$825,188

Early Visual Processing in Schizophrenia (competitive continuation)

The major goal of this project is to continue a bi-directional research program that starts with careful characterization of visual processing deficits in schizophrenia and moves systematically into exploration of neural substrates on the one hand and functional outcome on the other.

P50 HD055784:01 (Geschwind, D.; Sigman, M.) 07/1/2007-06/31/2012 1.2 calendar

ACE Autism Center of Excellence \$1,497,970

The major goal of this Center is determining the bases, consequences, and mutability of social communication deficits in autism.

1R01MH084955 (Altshuler) 7/1/09 – 6/30/14 0.6 calendar

NIMH \$454,997

Mapping Brain Structure to Function in Euthymic Subjects with Bipolar Disorder

Goal: To compare brain functional deficits in persons with bipolar disorder (observed during the performance of neuropsychological tasks during functional MRI) to gray and white matter volume data obtained from structural MRI.

UNDER REVIEW

NSF 1141630

National Science Foundation (*Cohen, Weiss Co-PI*) \$25 million

UCLA Center for Image Research: Electrons to Galaxies

Recognizing the common problems of scientists who use images as primary data, and as tools of communication, we propose to develop a center dedicated to understanding common analytic principles to foster multi-disciplinary discovery. The proposal includes six areas of research focus: *Features and Meaning, Dimensions, Unlimiting Resolution, Growth and Change, Aesthetics in Scientific Imaging, and Seeing.*

R21MH096239

NIH (*Cohen, PI*) \$423,500

Understanding attention-control across functional systems and temporal scales

This project will improve our understanding of the interactions between brain mechanisms that allow us to ignore distractions and brain mechanisms that allow us to sustain attention for extended time periods – both compromised in nearly every neuropsychiatric disorder. We will simultaneously measure brief electrical changes in the brain, occurring on the order of milliseconds, and slower fluctuations in brain metabolism, occurring on the order of seconds and minutes, in order to answer these questions.

R21NS080105

NIH (*Cohen, PI*) \$391,750

From Seizure to Epilepsy: prediction of disease progression using machine learning

Despite the fact that epilepsy is the world's most common neurological disorder and, according to the Center for Disease Control, it affects 2 million Americans; patients are misdiagnosed frequently. The goal of this research is to develop an inexpensive, effective and automated diagnostic adjunct tool that improves clinicians' ability to correctly diagnose epilepsy, leading to more focused treatment and fewer seizures. We will train our tool on a clinical gold standard database of over 1,680 patients, whose diagnosis is as certain as possible to maximize the direct applicability of our tool to clinical medicine.

R01 not yet assigned

NIH (*Gilbert Gee, PI*) \$2,499,995

Depression Disparities and Racism Measured by Surveys, Clinicians, & Neuroimaging

Epidemiologic studies indicate that rates of psychopathology vary by ethnicity, but the reasons for these differences, which have broad medical and societal impacts, remain unclear. The goal of this application is to determine the extent to which ethnic differences in rates of clinical depression are due to: (1) differential reporting on survey items; (2) underlying differences in psychopathology as indicated by neuroimaging, clinical evaluation, and survey responses and (3) differential reactivity to stressors, such as racial discrimination.

COMPLETED RESEARCH SUPPORT (as PI)

R01DA013054 Cohen 8/20/1999 – 1/31/2004

NIH/NIDA

Real Time Imaging of Mental Activity

For the development and characterization of a novel software tool set for the immediate analysis of functional MRI and other medical images. It will take advantage of novel approaches to computation that enable both multi-platform interoperability and rapid execution.

1 R01-EY12722-01A1 (Cohen) 05/15/2000 - 04/30/2004
NIH/NEI

MRI of Inverted Vision: Plasticity of Visuospatial Maps

This research was designed to assess the plastic changes in cortex that we hypothesize occur in the face of grossly distorted visual input from inverting goggles. Functional MRI is used to derive retinotopic, spatiotopic and auditory maps following semi-chronic exposure to the inverting device.

1R21-DA13627-01 (Cohen) 06/25/2002 - 05/31/2004
NIH

Enabling Technologies in fMRI and Cigarette Smoking

This project centers on the design of a system for the controlled delivery of cigarette smoke to subjects during functional Magnetic Resonance Imaging, and the characterization of the drug delivery and the responses of the human brain to cigarette smoke. We will look at both global and local signal changes from the smoke *per se*, and at local changes in BOLD responses to external stimuli as a function of the cigarette exposure.

1R21-DA15549-01 (Cohen) 06/01/2002-05/31/2004
NIH

Simultaneous Electrophysiology and Functional MRI

This project proposes the development of methods to record extracellular potentials during functional MRI in order to understand better the coupling between BOLD signals and cellular activity.

OTHER COMPLETED SUPPORT (Partial)

1T90DA22768 (Cohen) 09/1/2006 - 08/31/2011 .24 calendar
NIH \$1,461,579

Comprehensive training in Neuroimaging Fundamentals and Applications

The major goal of this study is to provide two years of training to graduate students in the fundamentals and applications of neuroimaging. Students in the NITP complete a year of graduate training in the Neurosciences, including fundamentals of Neuroanatomy, Systems Neuroscience, Neurophysiology and/or Cognitive Neuroscience, followed by a second year of graduate training which entails an intensive program in the tools of neuroimaging, including acquisition, data processing, analysis and experimental design.

P01 HD35470 Sigman (PI) 09/23/2002 - 05/31/2007
NIH

Determinants of Social Communication Skills in Autism

To determine the neural networks underlying social communication skills in autistic children using functional MRI.

Role: Co-Investigator

R01 DA15179 London (PI) 07/01/2003 – 06/30/2006
NIH-NIDA

Early methamphetamine Abstinence: fMRI and Cognition

The major goal of this project is to use functional magnetic resonance imaging (fMRI) to delineate the abnormalities in the brain circuits of methamphetamine abusers that underlie the cognitive deficits that they exhibit.

Role: Investigator

R01 AG13308 Small (PI) 9/1/2000-8/31/2005

NIH/NIA

Functional MRI for Early Diagnosis of Alzheimer's Disease

Correlating changes in the pattern of fMRI activation with neuropsychological measures of cognitive an memory decline in a population of older individuals who are genetically at risk for Alzheimer's Disease, based on the presence of the APOE4 allele.

R01 DA14093 London (PI) 7/1/01 – 6/30/04

NIH/NIDA

Nicotine Withdrawal, Smoking and Cognition: an fMRI Study

We used functional imaging by MRI to understand the changes in attention and working memory that have been detected in smokers as a function of abstinence and satiety. This grant, rewarded originally to Mark Cohen, has been transferred to Dr. Edythe London, as PI

5 R01 EY11862 Engel (PI) 09/30/1999 – 09/29/2005

NIH/NEI

Color Processing in Human Cortex

This project uses functional MRI to identify populations of neurons in cortex that support color vision. Neural responses will be measured for stimuli that reveal stages in the perception of color. These responses will be compared to behavioral measures, help in to clarify the stages of cortical processing that result in color perception.

5R01DA015059 Brody (PI) 10/01/2002-09/30/2006

NIH/NIDA

Treatments for Nicotine Dependence: Brain Mechanisms

Using as interventions, bupropion HCl, practical group counseling, or placebo, this study seeks to determine changes in regional cerebral metabolic activation during presentation of cigarette-related cues from pre- to post-treatment, to determine changes in cue-induced cigarette craving from pre- to post- treatment, to determine changes in regional metabolism in the neural state from pre- to post-treatment and to determine pre- treatment regional brain metabolic predictors of response treatment

R01 EY408313-08 Demer (PI)

NIH/NEI

“Biomechanical Analysis in Strabismus Surgery”

This research aims to understand the functional and neuroanatomical aspects of a newly developed biomechanical model of the extraocular musculature and its associated connective tissue through a combination of high resolution anatomical analysis, histopathologic study, direct magnetic resonance imaging of the orbital muscles including dynamic analysis of perfusion properties and biomechanical modeling and the incorporation of these into a computational model suitable for clinical use in surgical planning.

P01-AG024831-01 Small (PI)

9/01/05- 05/31/10

NIH/NIA

Amyloid Plaque and Tangle Imaging in Aging and Dementia

This program project grant is designed to determine whether FDDNP plaque and tangle PET imaging (1) correlates with the expected accumulation of neuropathological changes associated with aging and dementia; (2) predicts future decline in people at risk for dementia and in patients with dementia; and (3) augments other informative imaging, neuropsychological, and genetic risk measures in diagnosis and differential diagnosis of normal aging and dementia.

1R01DA021754-01A1 Monterosso (PI)

9/1/07 - 6/30/09

NIH/NIDA

Neural recruitment during self-control of smoking: An fMRI paradigm

Recent studies have used functional magnetic resonance imaging (fMRI) to identify neural substrates of reward, which include striatal, midbrain, and mesial forebrain regions. We use fMRI to examine a basic property of reward well studied in the behavioral sciences – the devaluation of anticipated rewards proportional to their delay. This property (“temporal discounting”) is central to addiction, where recovery taxes the capacity to delay gratification.

1P20 RR020750 Bilder, Robert (PI)

09/28/2004-7/31/2007

NIH/NCRR

Cognitive Phenotyping for Neuropsychiatric Therapeutics

The exploratory Center for Cognitive Phenomics (CCP) aims to accelerate identification and efficient measurement of cognitive phenotypes across syndromes and across species to advance interdisciplinary research on neuropsychiatric therapeutics.

Role: Investigator

R01 MH65079 Cannon, Tyrone (PI)

12/01/2002 – 11/30/2007

NIH/NIMH

Working Memory and Social Functioning in Schizophrenia

Uses fMRI to evaluate neural systems involved in working memory and their relation to the development of schizophrenia in adolescents at risk and to functional outcome in a parallel group of first-episode schizophrenic patient.

P50 MH066286 Cannon, Tyrone (PI) 07/01/2003 – 06/30/2008
NIH/NIMH

Encoding and Retrieval Processes in Long-Term Memory

As one project in a multi-project Center grant, uses fMRI to evaluate neural systems involved in episodic memory in longitudinal studies of prodromal adolescents and first-episodes schizophrenia patients to isolate deterioration in these systems and their relation to social deterioration in the prodromal and early phase of schizophrenia.

ROLE: Investigator (Nuechterlein, Center PI)

“VISN22 Mental Illness Research Education and Clinical Center”

Veterans Administration

PI: Stephen Marder

The MIRECC is dedicated to improving the long-term functional outcome of individuals with psychotic disorders through innovative research, clinical care and educational programs. The center consists of a Neuroimaging core, a Data core, a Neuroscience unit, a Treatment unit, a Health Services unit and an Education unit.

R01 NS33310 Jerome Engel (PI) 07/01/2000 – 06/30/2004
NIH/NINDS

In Vivo Studies of the Epileptic Hippocampus”

Capitalizing on results from models of epilepsy in lab animals, this project will characterize the fast-ripple (FR) discharges in the human hippocampus and their association with sites of seizure initiation. The project uses high-resolution MR imaging of the affected structures to precisely indicate electrode locations and to investigate local structural abnormalities. Importantly, this program is linked tightly to Dr. Cohen’s current investigations into the combined measurement of electrical and functional MRI signals.

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ABSTRACTS (partial – I do not keep careful track of these)

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