

Michael T. Rubens

Michael@gazzaleylab.ucsf.edu
(415) 902-3138

EDUCATION

Arizona State University, Tempe, AZ. BA, December 2006.

Major:	Psychology
Cumulative GPA:	3.3
Major GPA:	3.6
Upperclassman GPA:	3.9

RESEARCH EXPERIENCE

UC SAN FRANCISCO San Francisco, CA (August 2007-present)

Staff Research Associate II, Depts. of Neurology & Physiology, Adam Gazzaley MD, PhD

Coordinated analysis stream across several fMRI studies. Significantly contributed to all aspects of several experiments, including: study design, data collection, developing analytical tools, data analysis, interpretation and manuscript composition. Contributed largely to analysis tool library (i.e., MATLAB script collection). Refined and improved functional connectivity analysis techniques. Explored novel multivariate analysis methodology such as Independent Component Analysis of fMRI data and Multi Voxel Pattern Analysis. Introduced the novel technique of simultaneously recorded EEG-fMRI to the lab. *Major research techniques:* Functional and structural MRI (3T) analyzed with SPM5, FSL, GIFT and custom scripts. Behavioral testing. BrainAmp MR (32 Channel). Magstim TMS coil.

UNIVERSITY OF MICHIGAN Ann Arbor, MI (January 2007-July 2007)

Research Assistant, Chronic Pain & Fatigue Research Center, Daniel Clauw MD

Investigated manipulation of loci of control as a possible intervention for Fibromyalgia patients. Collected data and operated noxious stimulus delivery system. Performed fMRI data analysis. *Major research techniques:* MRI (3T) analyzed with SPM5. Unix databases.

WAYNE STATE UNIVERSITY Detroit, MI (December 2006-June 2007)

Research Technician, Psychology, Behavioral & Cognitive Neuroscience, Ava Senkfor PhD

Utilized MATLAB to develop programs to satisfy the requirements of the PI. Goals were delineated and then code was composed independently. These requirements were related to the compilation and visualization of data from behavioral and/or imaging studies, as well as tools that facilitated the organization or simplification of data. Additionally, performed data collection and assisted in the analysis and interpretation of data.

Major research techniques: computer programming with MATLAB. Behavioral testing.

ARIZONA STATE UNIVERSITY Tempe, AZ (January 2006-December 2006)

Research Assistant, Social Cognition Lab, Psychology, Douglas Kenrick PhD

Utilized eye-tracking to monitor visual attention in response to primed social goal-states. Collected eye-tracking and survey data. Assisted with analysis and interpretation of data.

Major research techniques: Eye-tracking. Behavioral assessments.

PUBLICATIONS:

Rubens, M.T., Essoe, J., Gazzaley, A. (in prep). Simultaneous EEG and fMRI recordings reveal spatial and temporal mechanisms underlying response slowing and cognitive decline with aging.

Clapp, W.C., **Rubens, M.T.**, Karlsson, J., Zanto, T.P., Gazzaley, A (in prep). Task demands mediate a trade-off between working memory and long-term memory systems.

Clapp, W.C., **Rubens, M.T.**, Sabharwal, J., Gazzaley, A. (in press). A deficit in switching between functional brain networks underlies the impact of multitasking on working memory in older adults. PNAS.

Zanto, T.P., **Rubens, M.T.**, Thangavel, A., Gazzaley, A. (in press). A causal link between selective attention and working memory via top-down modulation. Nature Neuroscience.

Bollinger, J., **Rubens, M.T.**, Masangkay, E., Kalkstein, J., Gazzaley, A. (2011). An expectation-based memory deficit in aging. *Neuropsychologia*. doi:10.1016/j.neuropsychologia.2010.12.021

Zanto, T.P., **Rubens, M.T.**, Bollinger, J., Gazzaley, A. (2010). The inferior frontal junction and top-down modulation of visual feature processing. *Neuroimage*. 53(2): pp. 736-45,

Bollinger, J., **Rubens, M.T.**, Zanto, T.P., Gazzaley, A. (2010). Expectation-driven changes in cortical functional connectivity influence working memory and long-term memory performance. *J Neuroscience*. 30(43): pp. 14399-410.

Wais, P.E., **Rubens, M.T.**, Boccanfuso, J., Gazzaley, A. (2010). Neural Mechanisms Underlying the Impact of Visual Distraction on Long-term Memory Retrieval. *Journal of Neuroscience*. 30(25): pp. 8541-50.

Clapp, W.C., **Rubens, M.T.**, Gazzaley, A.(2010). Mechanisms of working memory disruption by external interference. *Cerebral Cortex*. 20(4): pp. 859-72.

PRESENTATIONS:

Rubens, M.T., Clapp, W.C., Gazzaley, A. Neural basis of the impact of interruption on working memory performance in older adults. Program No. 605.11. 2010 Neuroscience Meeting Planner. San Diego, CA: Society for Neuroscience, 2010. Online.

Bollinger, J.J., **Rubens, M.T.**, Masangkay, E., Gazzaley, A. Deficits in expectation-driven functional connectivity underlie memory impairments in normal aging. Program No. 702.1. 2010 Neuroscience Meeting Planner. San Diego, CA: Society for Neuroscience, 2010. Online.

Wais, P., Boccanfuso, J., **Rubens, M.T.** & Gazzaley, A. The Neural Correlates of Visual Distraction During Episodic Memory Retrieval. Program No. 279.23. 2009 Neuroscience Meeting Planner. Chicago, IL: Society for Neuroscience, 2009. Online.

Zanto, T.P., **Rubens, M.T.**, Thangavel, A. & Gazzaley, A. Top-down modulation for visual features: Evidence from functional and causal connectivity. Program No. 701.01. 2009 Neuroscience Meeting Planner. Chicago, IL: Society for Neuroscience, 2009. Online.

Wais, P., Boccanfuso, J., **Rubens, M.T.**, Gazzaley, A. The impact of distraction on long-term memory retrieval. San Francisco, CA: Cognitive Neuroscience Society, 2009.

Clapp, W.C., **Rubens, M.T.**, Gazzaley, A. Individual differences in attentional allocation to relevant and irrelevant distraction predicts working memory performance. Program No. 814.7. 2008 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience, 2008. Online.

Clapp, W.C., **Rubens, M.T.**, Karlsson, J., Zanto, T., Gazzaley, A. Variations in task difficulty dissociate activity in prefrontal cortex and medial temporal lobe during working memory encoding. Melbourne, Australia: Organization for Human Brain Mapping, 2008.

RESEARCH SKILLS

- Expert knowledge of MATLAB programming language and concepts.
- Comprehension of MR physics, fMRI experimental design, data analysis using SPM, FSL, AFNI, Voxbo and custom MATLAB scripts.
- Participated in 45 hour “FSL & Freesurfer Course” in San Francisco, CA.
- Participated in 25 hour Brain Vision Analyzer workshop in Denver, CO, which covered many EEG related concepts such as ERP, ERSP and MR induced artifact removal.
- Significant experience collecting and analyzing EEG data using Analyzer2 and EEGlab, recorded in isolation and within the MR environment.
- Experience operating Siemens 3T trio magnet.
- Experience administering transcranial magnetic stimulation with a Magstim figure eight coil within the context of an fMRI-guided EEG/TMS experiment.
- Experience with E-prime and Psychophysics toolbox to present experimental stimuli.
- Consistent experience applying relevant statistical concepts to various datasets.
- Frequent contributor to SPM and FSL mailing lists, providing support since early 2008.
- Administration of neuropsychological tests of dementia and cognitive abilities.

TEACHING EXPERIENCE

ARIZONA STATE UNIVERSITY Tempe, AZ (January 2006-December 2006)

Supplemental Instruction Leader, Department of Psychology

Conducted a series of review sessions for groups of students enrolled in introductory psychology courses. Designed instruction materials and developed review curriculum. Worked with associated faculty members to create meaningful and engaging review sessions.

UC San Francisco San Francisco, CA (Spring 2008-Present)

Supervisor of volunteer research assistants, Gazzaley Lab, Department of Neurology

7 students since 2008 from various disciplines (Molecular and Cellular Biology, Neuroscience, Medicine and Psychology); Mentoring involved training on research protocols, administering neuropsychological examinations, neural and behavioral data collection, data analysis and/or scientific writing:

- Ka-Yee Essoe, BS (San Francisco State University)
- Mia Borzello (UC Berkeley)
- Ana Navarro Cebrián, PhD (University of Granada, Spain)
- Jasdeep Sabharwal, BS (UC Berkeley)
- John Ebrahim, BS (UC Berkeley)
- Jonas Karlsson (Linköping University, Sweden)
- Melanie Pincus, BA (Stanford University)

PROFESSIONAL AFFILIATION

- 2008-present: Society for Neuroscience, member
- 2008-present: Organization for Human Brain Mapping, member
- 2007-present: Cognitive Neuroscience Society, member

REFERENCES

- **Adam Gazzaley, MD PhD** [current advisor], Adam.Gazzaley@ucsf.edu
- **Ezequiel Morsella, PhD** [colleague], Morsella@sfsu.edu
- **Judith Ford, PhD** [collaborator/colleague], Judith.Ford@ucsf.edu
- **Tracy Warbrick, PhD** [mentor/collaborator], t.warbrick@fz-juelich.de
- **Wesley Clapp, PhD** [mentor/collaborator], wesleyclapp@gazzaleylab.ucsf.edu
- **Joaquin Anguera, PhD** [collaborator/colleague], Joaquin.Anguera@ucsf.edu
- **Theodore Zanto, PhD** [mentor], Theodore.Zanto@ucsf.edu
- **J Zack Chadick, PhD** [colleague/mentor], Chadick@phy.ucsf.edu
- **Timothy Verstynen, PhD** [mentor], TimothyV@pitt.edu
- **Jesse Rissman, PhD** [mentor], Jesse.Rissman@stanford.edu
- **Judy Pa, PhD** [colleague/collaborator], Judy.Pa@ucsf.edu
- **Peter Wais, PhD** [colleague/collaborator], Peter.Wais@ucsf.edu
- **Jonathan Kalkstein, MD PhD** [colleague], Jonathan.Kalkstein@ucsf.edu
- **Morgan Hough, PhD** [colleague], Mhough@fmrib.ox.ac.uk
- **Jacob Bollinger, PhD** [Colleague], JBolling@phy.ucsf.edu
- **Lara Stables, PhD** [colleague], Lara.Stables@ucsf.edu
- **Omar AlHashimi, MD** [colleague], alhashimi@gazzaleylab.ucsf.edu
- **Nathan Cashdollar, PhD** [colleague], n.cashdollar@ucl.ac.uk
- **Douglas Kenrick, PhD** [former PI], Douglas.Kenrick@asu.edu