

# **Jonathan Michael Kalkstein, M.D., Ph.D.**

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## **CONTACT**

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## **EDUCATION**

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M.D., University of Miami School of Medicine  
Miami, Florida  
Aug. 1995-May 2004  
Ph.D., University of Miami School of Medicine  
Miami, FL  
Field of study: Neuroscience  
July 1997-July 2002  
B.S., Cornell University  
Ithaca, NY  
Major: Applied and Engineering Physics  
Aug. 1991-May 1995

## **RESEARCH EXPERIENCE**

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San Francisco VAMC Neurosciences and Psychiatry Fellow/ Postdoctoral Fellow  
UCSF, Dept. of Psychiatry  
Advisor: Adam Gazzaley, M.D., Ph.D.  
July 2008-Present

Neural mechanisms of mental imagery in young adults and aging human populations.

Research Resident/ Postdoctoral Fellow  
UCSF, Dept. of Physiology, Neurology and Psychiatry  
Advisor: Adam Gazzaley, M.D., Ph.D.  
July 2007-June 2008

#### Postgraduate Research

University of Miami, Dept. Biophysics and Physiology

Advisor: Karl Magleby, Ph.D.

2003-2004

My dissertation work enabled this project, which focused on developing a computer model that accounts for several processes that cause short term plasticity. The model was developed to predict experimentally observed stimulation induced changes in neurotransmitter release under a wide range of conditions. This work may enable more realistic neural network models of CNS computation and an increased understanding of working and short-term memory.

#### Graduate Student in the Neuroscience Program

University of Miami, Dept. Biophysics and Physiology

Advisor: Karl Magleby, Ph.D.

1997-2002

I examined components of short term stimulation induced plasticity that are important in modulating many types of synapses. Characterization of this type of plasticity will likely be important in understanding a variety of phenomena, including memory and neural computations that act over times of milliseconds to minutes. The discovery that resulted from this research was a masking effect that occurs under physiological conditions at the frog neuromuscular junction, a robust model synapse for this type of study. Under such conditions, repetitive motor neuron stimulation induces decreases in transmitter release called depression. Another process, called augmentation, typically acts to increase neurotransmitter release under non-physiological conditions of decreased extracellular calcium, where little depression is observed. This work demonstrated that although augmentation is not readily observable under physiological conditions, augmentation is indeed substantial, but masked by depression. Augmentation appears to be a process that might prevent excessive depression of transmitter release and preserve the efficacy of synaptic transmission during prolonged neural activity.

#### Undergraduate Research Assistant

Cornell University, Dept. of Chemistry

Advisor: Atsuo Kuki, Ph.D.

1993-1994

I carried out an independent project during my junior and senior years of college developing computer models to simulate electrostatic interactions of biological macromolecules with the aqueous environment. Some of this work was conducted under an NSF undergraduate summer fellowship.

#### Research Assistant/Undergraduate researcher

University of Pennsylvania, Division of Neuropsychopharmacology

Advisor: Alan Frazer, Ph.D.

1990-1992

During three consecutive summers beginning in 1990, I assisted in projects and carried out an independent project. The goal of these projects was to examine the binding properties of novel radioactive ligands for serotonergic and noradrenergic reuptake transporter sites in rat brain slice preparations. Such ligands are used to characterize potentially clinically useful serotonin and norepinephrine reuptake inhibitors using competitive binding studies.

## **CLINICAL TRAINING AND OTHER WORK EXPERIENCE**

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Psychiatric Research/ Neurosciences Fellowship, UCSF/ San Francisco VA. Clinical responsibilities include supervising UCSF psychiatry residents and UCSF medical students in a general psychiatry medication management clinic at the San Francisco VA.  
July 2008 – present

Psychiatrist, Contra Costa County Crisis Stabilization Unit. Providers of psychiatric emergency services.  
Oct 2008-present

Resident, UCSF Psychiatry Residency Training Program, Currently PGY-4  
June 2004 – June 2008.

Psychiatrist, Walden House . San Francisco, CA: 2006 to present.

Psychiatrist, SFGH Psychiatric Emergency Service, San Francisco, CA: April 2006 to present.

Physics Tutor, Cornell Learning Skills Center  
Cornell University  
Physics tutoring to undergraduate students, primarily disadvantaged minorities.  
Sept. 1992-May 1995

## **PUBLICATIONS/POSTER SESSIONS**

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Kalkstein J, Gazzaley A. "Decreased Top Down Control in Older Adults Underlies a Visual Imagery Deficit." Under review at *Neuron*.

Jonathan Kalkstein and Adam Gazzaley, "A combined EEG and fMRI study of motion and face mental imagery", Society for Neuroscience Annual Meeting, November 2008.

Jonathan Kalkstein and Karl L. Magleby, "Augmentation increases vesicular release probability in the presence of masking depression at the frog neuromuscular junction", *The Journal of Neuroscience*. Dec. 15, 2004; 24 (50): pp. 11391-403.

Jonathan Kalkstein, "Lifting the mask of depression to reveal augmentation of transmitter release at physiological quantal content", University of Miami Dissertation, August, 2002

Jonathan Kalkstein and Karl L. Magleby, "Synaptic augmentation of transmitter release at physiological quantal content", Biophysical Society, February, 2002

Jonathan Kalkstein and Karl L. Magleby, "Characterization of augmentation at physiological quantal content", Biophysical Society, February, 2000

## **HONORS/AWARDS**

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UCSF Psychiatry Resident Research Award (2008)  
Full medical school tuition scholarship (MD/PhD program)  
Graduate student travel award (2002)  
Cornell McMullen Dean's Scholarship  
NSF undergraduate research fellowship award  
Nominated to the Golden Key Honor Society  
Nominated to the Tau Beta Pi National Engineering Honor Society

## **VOLUNTER EXPERIENCE**

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University of Miami School of Medicine  
Teaching assistant in neurophysiology  
1998

I volunteered as a teaching assistant, leading small group problem solving and question/answer sessions for the UM medical school course in neurophysiology during the spring semester of 1998.

University of Miami School of Medicine  
Teaching assistant in cellular biophysics  
1998-2001

I volunteered as a teaching assistant, leading small group problem solving and question/answer sessions for the UM medical school course in cellular biophysics during the spring semesters of 1998, 1999, 2000, and 2001.

University of Miami School of Medicine  
Volunteer for Florida Keys Health Fair  
1995-1996

The Florida Keys Health Fair is an annual event in which physicians and student volunteers from the University of Miami care for economically disadvantaged, uninsured residents of the Florida Keys. At the fairs that took place during Mar. 1995 and Mar. 1996, during my first two years of medical school, I volunteered to help in diagnosis and treatment of patients.

Cornell University  
Member of the cross country running team  
1991

I was a member of the Cornell Cross Country Running Team during the fall semester, 1991.

## **HOBBIES AND INTERESTS**

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Snow skiing, windsurfing, sailing, cycling, running, tennis, hiking and camping, gourmet food, cooking, wines, travel, photography, philosophy, the mind and consciousness, computer programming.