

Anna-Clare Milazzo

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Education:

University of California, San Diego, La Jolla, CA

March 2009, Ph.D. Chemistry, Thesis: *Development of a Large Format Direct Detection Device for 3D Transmission Electron Microscopy*

March 2005, M.S. Physics (Biophysics)

The University of Chicago, Chicago, IL

June 2000, B.A. Physics (honors) and Mathematics

St. John's College, Annapolis, MD, 1995-1997

Research Experience:

VA War Related Illness & Injury Study Center and

Department of Psychiatry and Behavioral Sciences

VA Palo Alto Healthcare System and Stanford University, Palo Alto, CA

Advisors: Dr. John Ashford and Dr. Michael Greicius

Postdoctoral Scholar

October 2011- present

I am comparing the resting state brain network activity of subjects with post-traumatic stress disorder (PTSD), traumatic brain injury (TBI) and healthy controls. The primary aim of this research is to explore how resting state brain networks may differ between PTSD and TBI. This work is part of the MIND study at the VA that will use sleep studies, neuroendocrine measures and neuroimaging to investigate improved differential diagnostic criteria for PTSD and TBI.

Department of Chemistry and Biochemistry

University of California, San Diego, La Jolla, CA

Advisor: Dr. Nguyen-Huu Xuong

Postdoctoral Scholar

March 2009 – September 2011

I investigated the use of a large format Direct Detection Device for cryo-electron microscopy. To test the performance of this detector, I performed single particle cryo-EM experiments. In addition, I explored new data analysis strategies exploiting the high sensitivity and fast readout of the detector to improve the spatial resolution of the 3D macromolecular reconstruction.

Graduate Research Assistant

September 2002 – March 2009

I investigated the use of a new CMOS detector for transmission electron microscopy with the aim of developing a camera that would significantly improve imaging of biological specimen compared to current technologies. Working with several iterations of prototype Direct Detection Devices (DDD), I measured and analyzed the detector characteristics and collaborated with a team of researchers to optimize the image quality. Using the new detector, I studied high resolution 3D tomography approaches for visualizing the molecular details of protein complexes inside the cell.

Cardiac Electrophysiology Laboratory

University of Chicago Hospitals, Chicago, IL

Advisor: Dr. Dorothy Hanck

Undergraduate Research Assistant

October 1998 – June 2000

I conducted patch clamp experiments in order to measure the ionic current, rate constants and kinetics of the voltage gated T-type calcium ion channel. Using simulated data, I investigated the validity and limits of noise fluctuation analysis and hidden Markov modeling methods for the data analysis. Using noise fluctuation analysis, I obtained a reasonable estimate for the ionic current of this ion channel from experimental data that was not possible through other methods.

Thermospheric and Ionospheric Physics Group

The Naval Research Laboratory, Washington, DC

Undergraduate Research Assistant

June 1996 – August 1997, Summer 1998

I analyzed the performance of the stacked-grid collimator component of SSULI (Special Sensor Ultraviolet Limb Imager), a satellite that measures vertical profiles of the natural airglow radiation in the upper atmosphere and ionosphere. This work helped resolve the discrepancy between predicted efficiency and experimental measurements of the collimator.

Research Funding:

CNI Neuroventures Pilot Grant

12/01/2011 – 06/30/2012

Role on Project: Principal Investigator

Total Amount: \$5900

Granting Agency: Stanford Center for Cognitive and Neurobiological Imaging

Title: *Identification of Mood-Relevant Brain Networks Using a Continuous, Subject-Driven Rumination Paradigm*

Honors and Awards:

NIH Molecular Biophysics Training Grant Fellowship

June 2003-June 2005

San Diego Fellowship

Sept 2002-June 2003

Howard Hughes Summer Research Fellowship

1999

Related Professional Experience:

Google Inc., Santa Monica, CA

Software Engineer Intern

June 2005-September 2005

LingoMotors, Inc., Cambridge, MA

Software Engineer

August 2001 – June 2002

Thomson Financial Interactive, Cambridge, MA

Software/Database Engineer

August 2000 – July 2001

Presentations:

Gordon Research Conference (3DEM) invited speaker: *Using a Direct Detection Device (DDD) for 3D Electron Microscopy*, July 2008

Selected publications:

A.-C. Milazzo, A. Cheng, A. Moeller, D. Lyumkis, E. Jacovetty, J. Polukas, M.H. Ellisman, N.-H. Xuong, B. Carragher, C.S. Potter, *Initial evaluation of a Direct Detection Device detector for single particle cryo-electron microscopy*, Journal of Structural Biology. **176**(3):404-408 (2011)

A.-C. Milazzo, G. Moldovan, J. Lanman, L. Jin, J.C. Bouwer, S. Kleinfelder, S.T. Peltier, M.H. Ellisman, A.I. Kirkland, N.-H. Xuong, *Characterization of a direct detection device imaging camera for transmission electron microscopy*, Ultramicroscopy **110**(7):741-744 (2010)

L. Jin, A.-C. Milazzo, S. Kleinfelder, S. Li, P. Leblanc, F. Duttweiler, J.C. Bouwer, S.T. Peltier, M.H. Ellisman, N.-H. Xuong, *Applications of direct detection device in transmission electron microscopy*, Journal of Structural Biology **161**(3):352-358 (2008)

A.-C. Milazzo, P. Leblanc, F. Duttweiler, L. Jin, J.C. Bouwer, S.T. Peltier, M.H. Ellisman, F. Bieser, H.S. Matis, H. Wieman, P. Denes, S. Kleinfelder, N.-H. Xuong, *Active pixel sensor array as a detector for electron microscopy*. Ultramicroscopy **104**:152–159 (2005)

A. Milazzo, S.E. Thonnard, C.Lam. *Analysis of the SSULI (Special Sensor Ultraviolet Limb Imager) Stacked-Grid Mechanical Collimator*. SPIE Proc. **3443** (1998)