

# Evan Alexander Layher

ealayher@ucdavis.edu

## Education

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*September 2008 – June 2012*

University of California at Davis (UC Davis), Davis, CA

- Bachelor of Arts and Science: Psychology and Neurobiology, Physiology and Behavior (with Honors)
- Overall GPA: 3.72      Major GPA: 3.86      3<sup>rd</sup>/4<sup>th</sup> Year GPA: 3.82

*August 2004 – June 2008*

Argonaut High School, Jackson, CA

- Valedictorian (Class of 2008)

## GRE Scores

Quantitative (160/170) Verbal (161/170) Writing (4.5/6.0)

## Computer Programming: [github.com/ealayher](https://github.com/ealayher)

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- Languages: **Bash, MATLAB, Python**
- Programs: **Analyze, E-Prime, EEGLab, FSL, jMRUI, Presentation**

## Research Experience

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*December 2012 – Present*

Junior Specialist

UC Davis Imaging Research Center, Sacramento, CA

J. Daniel Ragland, Ph.D.

**Brain Mechanisms of Impaired Episodic Memory in Schizophrenia**

**CNTRACS: Cognitive Neuroscience Test Reliability and Clinical applications for Schizophrenia Consortium**

Prepare and administer neuroimaging experiments:

- **EEG:** Neuroscan 64 electrode cap (**Presentation**)
- **fMRI:** 3T Siemens Tim Trio (**E-Prime and Presentation**)
- **MR Spectroscopy:** 3T Siemens Tim Trio (Single voxel spectroscopy)

Pre-process and analyze neuroimaging data:

- **EEG:** **EEGLab** (Time-frequency analysis)
- **fMRI:** **FSL** (General linear model)
- **MR Spectroscopy:** **jMRUI** (GLX/CR and GABA/CR ratios)

Administer and assess clinical and neuropsychological tests:

- **BPRS:** Assessment of psychotic symptoms
- **CAINS:** Assessment of negative symptoms
- **HVLT-R:** Assessment of verbal learning and memory
- **SCID-I (DSM-IV-TR):** Research diagnosis for Axis I mental disorders
- **UPSA:** Measurement of functional capacity
- **YMRS:** Assessment of manic symptoms

General laboratory duties:

- Train research personnel on laboratory methods and protocols
- Maintain IRB protocols and renewals
- Recruitment of individuals with psychosis and healthy comparison subjects

*October – December 2012*

Research Assistant

Center for Neuroscience, Davis, CA

Arne Ekstrom, Ph.D.

**Representation and Binding of Spatial and Temporal Episodic Memories in Human Hippocampus**

- Administered computational behavioral tasks (**MATLAB**)
- Traced medial temporal lobe structures (**FSL**)

June 2009 – October 2012

Research Assistant

MIND Institute, Sacramento, CA

Tony Simon, Ph.D.

### Visuospatial Cognitive Deficit in 22q11.2 Deletion Syndrome

- Traced amygdala for volumetric analysis (**Analyze**)
- Pre-processed structural MRI scans
- Trained new interns on laboratory protocols

June 2009 – August 2011

Research Assistant

Center for Mind and Brain, Davis, CA

Kristin Lagattuta, Ph.D. and Drika Weller (formally Makariev), Ph.D.

### Children's Reasoning about Future-Oriented Thoughts, Emotions, and Decisions

- Helped create reliable coding scheme to analyze emotions and decisions in child participants
- Transcribed child research participants' interview responses
- Analyzed interview responses

## Teaching Experience

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September 2012 – Present

Private tutor for high school and college students

- Algebra, Calculus, Chemistry, Geometry and standardized tests (ACT/CAHSEE/SAT)

November 2008 – February 2012

Assistant Supervisor

North Davis Elementary School, Davis, CA

Kristen Muir, Ph.D.

- Supervised and taught organized Physical Education program for elementary students

## Publications

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J. Daniel Ragland, Charan Ranganath, Michael P. Harms, Deanna M. Barch, James M. Gold, **Evan Layher**, Tyler A. Lesh, Angus W. MacDonald III, Tara A. Niendam, Joshua Phillips, Steven M. Silverstein, Andrew P. Yonelinas, Cameron S. Carter. **Functional and Neuroanatomical Specificity of Episodic Memory Dysfunction in Schizophrenia: An fMRI study of the Relational and Item-Specific Encoding Task**. *JAMA Psychiatry*. Published online July 22, 2015.

J. Daniel Ragland, **Evan Layher**, Deborah Hannula, Joshua Phillips, Tara A. Niendam, Tyler Lesh, Marjorie Solomon, Cameron Carter, Charan Ranganath. **A Gradient of Hippocampal Function and Dysfunction During Relational Memory in People With Schizophrenia**. (*in preparation*).

## Conference Posters and Presentations

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J. Daniel Ragland, Deborah E. Hannula, **Evan Layher**, Joshua Phillips, Cameron S. Carter, Tyler A. Lesh, Tara A. Niendam, Marjorie Solomon, Charan Ranganath (March, 2015). **Use of Simultaneous Eye-Movements and fMRI to Reveal Specific Relational Memory Deficits in Schizophrenia**. Poster presented at the 15<sup>th</sup> International Congress on Schizophrenia Research; Colorado Springs, CO.

J. Daniel Ragland, Deborah E. Hannula, **Evan Layher**, Joshua Phillips, Cameron S. Carter, Tyler A. Lesh, Tara A. Niendam, Marjorie Solomon, Charan Ranganath (December, 2014). **Dissociation of Hippocampally Mediated Relational versus Item-Specific Memory Deficits in Schizophrenia using Eye-Movement Monitoring During fMRI**. Poster presented at the 53<sup>rd</sup> annual meeting of the American College of Neuropsychopharmacology; Phoenix, AZ.

**Layher, E.A., Hannula D.E., Ragland, J.D. (August, 2014). Monitoring eye movements to dissociate the neural correlates of relational versus item specific memory impairments in schizophrenia.** Talk presented at the 11<sup>th</sup> annual Bay Area Memory Meeting; Stanford, CA.

Ragland, J.D., Ranganath, C., Barch, D.M., Gold, J.M., Harms, M.P., **Layher, E.A.**, MacDonald, A.M., Phillips, J.D., Poppe, A., Silverstein, S.M., Thompson, D., Carter, C.S. (December, 2013). **Neural Correlates of Relational and Item-Specific Encoding and Retrieval (RiSE) in Schizophrenia**. Poster presented at the 52<sup>nd</sup> annual meeting of the American College of Neuropsychopharmacology; Hollywood, FL.

**Layher E.A.**, Ragland J.D., Ranganath C., Luck S.J., Long D.L., Kring A.M., Lesh T.A., Niendam T.A., Swaab T., Solomon M., Carter C.S. (August, 2013). **Effect of Schizophrenia on Dorsolateral Prefrontal Cortex Function and Theta-Band Power during Selective Long-Term Memory Encoding**. Poster presented at the 10<sup>th</sup> annual Bay Area Memory Meeting; San Francisco, CA.

Makariev, D.W., Lagattuta, K.H., Sayfan, L., Arevalo-Avalos, M., Bucklew, A., **Layher, E.** & Shaffer, R. (June, 2011). **Children's explanations for people's behaviors, emotions, and thoughts in morally challenging situations**. Paper presented at the 41<sup>st</sup> annual meeting of the Jean Piaget Society; Berkeley, CA.

## **Academic Awards and Honors**

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UC Davis Graduation with Honors (2012)

UC Davis Citation Award for Outstanding Performance in Neurobiology, Physiology and Behavior (2012)

- Awarded to students who have achieved academic excellence and participated in independent research projects

UC Davis community service award (2011)

- Awarded for over 200 hours of community service through various projects during the 2010-2011 academic year

MIND Institute Outstanding Volunteer Award (2011)

- Awarded for outstanding contribution to research projects at the MIND Institute

UC Davis First Year Scholar Award (2009)

- Awarded to first year students for academic excellence

Anne Noel Fazio Scholarship (2008 – 2012)

- Awarded to students who are affected by cancer with a demonstrated commitment to pursue higher education

UC Davis Dean's Honor List

- Awarded: *Fall 2008, Winter 2010, Spring 2010, Fall 2010 and Winter 2011*

Evan Layher Award (Argonaut High School) (2008)

- Awarded annually to one college-bound senior in Amador County who excels in school, community service, extracurricular activities, and leadership
- Named in my honor for excelling in the above categories while also being a childhood Leukemia survivor

## **References**

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J. Daniel Ragland, Ph.D.	jdragland@ucdavis.edu	(916) 734-5802
Arne Eksrom, Ph.D.	adekstrom@ucdavis.edu	(530) 757-8850
Tony Simon, Ph.D.	tjsimon@ucdavis.edu	(916) 703-0407
Richard, Maddock, M.D.	rjmaddock@ucdavis.edu	(916) 734-3286