Derek Alexander Pisner

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EDUCATION

University of Texas Austin | Austin, Texas, 2018.
- PhD Candidate, Cognitive Neuroscience and Statistics Portfolio
- MA Psychology, Clinical

University of California Berkeley | Berkeley, California, 2013.
- Post-Baccalaureate, Psychology

University of Virginia | Charlottesville, Virginia, 2011.
- Bachelor of Arts, Philosophy

Robinson Secondary School | Fairfax, Virginia, 2007.
- International Baccalaureate (IB) Diploma. Valedictorian

PROFESSIONAL EXPERIENCE

CogNeuro Lab | Austin, TX, August 2018 – present
- Develop biostatical methods aimed at personalizing diagnosis and treatment delivery of mood disorders.
- Engineer software for characterizing MDD 'network neurophenotypes' using multimodal resting-state fMRI, structural MRI, diffusion MRI, and Electroencephalography (EEG) data.

Mood Disorders Laboratory (MDL) | Austin, TX, July 2016 – present
- Develop biostatical models for the personalized prediction of diagnosis and treatment outcome in mood disorders.
- Operate MRI scanning for NIMH-funded research on attention bias modification in Major Depressive Disorder (MDD).
- Engineer cloud-based mobile instrumentation framework for intensive repeated measures of GPS, social communications, ambient noise, and derivative features from depressed subjects for machine-learning applications.

Social Cognitive Affective Neuroscience (SCAN) Lab | Tucson, AZ, July 2014 – July 2016
- Coordinate two Department of Defense funded studies investigating mild TBI.
- Establish recruitment relationships with over 73 organizations and medical facilities across southern Arizona.
- Develop and maintain analysis pipelines for DTI, MRI, EEG, and fMRI.
- Work closely with biomedical engineering team to build custom multiband diffusion MRI sequences.
- Construct, program, and administrate RedCap databases for all studies.
- Perform all Linux system administration and network configuration for all lab computer systems.
- Construct HPC cluster for neuroimaging data analysis core of the Department of Psychiatry.
- Conduct EEG electrode hook-ups, Multiple Sleep Latency Tests (MSLT), and polysomnographic assessment.

PUBLICATIONS

Pisner D., Shumake J., Beevers, C, Schnyer D. *(In Prep*). A Reproducible Neurobiology of Depressive Rumination.

Alexander, C., **Pisner D.,** Jacova, C. *(In Press*). Capturing early brain changes in progranulin mutation: a systematic review of neuroimaging evidence. *Psychological Medicine.*

Pearson, R., **Pisner D.,** Shumake J., & Beevers, C. *(2018*). A Machine Learning Approach to Predicting Treatment Outcome Following an Internet Intervention for Depression. *Psychological Medicine, 5, 1-12*

Papini, S., **Pisner, D.,** Shumake, J., Beevers, C., Powers, M., Rainey, E., Smits, J., Warren, A. *(In Press*). A machine learning approach to prediction of posttraumatic stress disorder after emergency room hospitalization. *Journal of Anxiety Disorders.*

Pearson, R., **Pisner D.,** & Beevers, C. (2017) Translational Research in Mental Health: Challenges and Opportunities. *The Behavior Therapist, 40*(8)*,* 302-312.

Pisner, D., Smith, R., Klimova, A., Alkozei, A., Killgore, W. D. (2016) Highways of the emotional intellect: white matter correlates of an ability-based measure of emotional intelligence. *Social Neuroscience, 11, 1-15.*

Alkozei A, Smith R, **Pisner D.,** Vanuk JR, Fridman A, Shane BR, Knight SA, Killgore WD. (2016) Exposure to Blue Light Increases Subsequent Functional Activation of the Prefrontal Cortex During Performance of a Working Memory Task. *Sleep. 39*(9),1671-80.

Killgore W. D., Singh P., **Pisner, D.**, Kipman, M., Fridman, M., Weber, M. (2016) Gray matter volume and executive functioning correlate with time since injury following mild traumatic brain injury. *Neuroscience Letters, 612, 238–244.*

Killgore, W. D., Vanuk, J. R., Knight, S. A., Markowski, S. M., **Pisner, D.**, Shane, B., Fridman, A., Alkozei, A. (2015) Daytime sleepiness is associated with altered resting thalamocortical connectivity. *NeuroReport*, *26, 779-784.*

POSTER PRESENTATIONS

Pisner, D., Shumake J., Beevers, C., Schnyer D. *Depressive Rumination as a Microstructural-Functional Failure of Network of Networks.* Organization for Human Brain Mapping (OHBM) 2018 Annual Meeting. Singapore.

Pisner, D., Beevers, C., Schnyer D. *Resting-state functional connectivity of the Cognitive Control Network in Major Depressive Disorder.* Organization for Human Brain Mapping (OHBM) 2017 Annual Meeting. Vancouver, BC.

Bernstein, A., **Pisner, D.**, Klimova, A., Umapathy, L., Do., L., Squire, S., Killgore, S., Trouard, T. *Effects of Multiband Acceleration on High Angular Resolution Diffusion Imaging data collection, processing, and analysis.* International Society for Magnetic Resonance in Medicine (ISMRM) 24th Annual Meeting. Suntec City, SG.

Pisner, D., Singh, P., Fridman, A., Killgore. W.D. *Resilience Following Mild Traumatic Brain Injury is associated with Gray Matter Volume in the Left Precentral Gyrus.* Presented at the International Neuropsychological Society's 44th Annual Meeting, Boston, MA.

Pisner, D., Smith, R., Klimova, A., Alkozei, A., Killgore, W. D. *Highways of the emotional intellect: white matter correlates of an ability-based measure of emotional intelligence.* Presented at the International Neuropsychological Society's 44th Annual Meeting, Boston, MA.

Singh, P., **Pisner, D.,** Fridman, A., Killgore. W.D. *Volumetric Differences in Gray Matter in Healthy Versus Overweight Individuals Post Mild Traumatic Brain Injury: A Voxel Based Morphometric Study.* Presented at the International Neuropsychological Society's 44th Annual Meeting, Boston, MA.

Singh, P., **Pisner, D.,** Fridman, A., Killgore. W.D. *Time Dependent Differences in Gray Matter Volume in Individuals Post Mild Traumatic Brain Injury: A Voxel Based Morphometric Study.* Presented at the International Neuropsychological Society's 44th Annual Meeting, Boston, MA.

Fridman, A., Singh, P., **Pisner, D.,** Killgore. W.D. *Gray Matter Volume in the Left Hemisphere of the Medial Prefrontal Cortex Is Related to Life Satisfaction in Individuals Who Have Experienced Mild Traumatic Brain Injury.* Presented at the International Neuropsychological Society's 44th Annual Meeting, Boston, MA.

Klimova, A., **Pisner, D.,** Killgore. W.D. *Neural Correlates of Cognitive and Emotional Impairments in Acute Versus Chronic Mild Traumatic Brain Injury: a Diffusion Tensor Imaging Study.* Presented at the International Neuropsychological Society's 44th Annual Meeting, Boston, MA.

Pisner, D., Alkozei, A., Killgore. W.D. (2015, May) *Trait emotional suppression is associated with decreased activation of the insula and thalamus in response to masked angry faces.* Presented at the Society of Biological Psychiatry's 70th Annual Meeting. Toronto, ON.

Pisner, D., Alkozei, A., Killgore. W.D. (2015, February) *Visuospatial reasoning mediates the relationship between emotion recognition and emotional intelligence.* Presented at the International Neuropsychological Society's 43rd Annual Meeting, Denver, CO.

Alkozei, A., **Pisner, D.,** Killgore. W.D. (2015, February) *Emotional intelligence is differentially correlated with prefrontal cortical responses to backward masked fearful and angry faces.* Presented at the International Neuropsychological Society's 43rd Annual Meeting, Denver, CO.

Pisner, D., Bickford D., Crothers R., Kivowitz A., Mackin R., Nelson, J., Tegenkamp K. (2014, May). *Self-reported sleep disturbance as a risk factor for memory deficits in late life depression.* Presented at the American Psychiatric Association's 167th Annual Meeting, New York, NY.

Pisner, D., Kivowitz A., Bickford D., Crothers R., Mackin R., Nelson, J., Tegenkamp K. (2014, May). *Association of obesity and depression severity in late life depression.* Presented at the American Psychiatric Association's 167th Annual Meeting, New York, NY.

Bickford D., Crothers R., Kivowitz A., **Pisner, D.,** Tegenkamp K., Mackin R., Nelson, J. (2014, May). *Association of cognitive outcomes and remission in late life depression: a 12 month longitudinal study.* Presented at the American Psychiatric Association's 167th Annual Meeting, New York, NY.

COMPUTATIONAL SKILLS

- **UNIX**
  - Expert proficiency in shell programming
  - Expert knowledge of UNIX system architecture
  - 5+ years of experience with systems administration
- **Python**
  - Expert-level proficiency
  - Experience with numerous data science tools including NumPy, Scipy, Matplotlib, Pandas, Scikit-Learn, XGboost, tsfresh, NetworkX, NLTK (for Natural Language Processing), and others
  - Developing contributor to several neuroimaging tools including NiPype, Dipy, NDMG, and Nilearn
- **Parallel Computing**
  - Experience installing, maintaining, and administrating parallel/distributed computing environments with Grid Engine, PBS/Torque, SLURM, and Condor; experience programming and submitting serial, openMP, MPI, and CUDA-enabled, and parametric job types
  - Experience building and tuning SSHFS and NFS network file shares for high-performance cluster computing
  - Experience building and scaling cloud-computing infrastructures for hosting mixed linux, apache, sql, php systems with Amazon Web Services
- **R**
  - High-level proficiency, and personal software of choice for most statistical analyses
- **MATLAB**
  - Neuroimaging toolboxes, substantial experience with scripting, matrix algebra

    - Expert user of MATLAB Distributed Computing Server (MDCS) and the parallel computing toolbox
- **FSL**
    - Expert-level familiarity with available and beta functions in the FSL library
    - Revised and added overlay scripts and modifications to core FSL software in collaboration with developers
    - Substantial experience with FSLnets—FSL's resting-state functional MRI (rsfMRI) connectivity suite
    - Adapted source code for custom parallel computing with TACC's SLURM scheduler
- **Brain Connectivity Toolbox (BCT)**
    - Experience with Graph Theory as applied to brain network matrices
- **SPM**
    - Experience with both SPM8 and SPM12, including scripting
    - User of SPM toolboxes including CONN, XJview, ART, VBM, Wake Forest PickAtlas Utility
- **EEGLAB**
    - Scripting all stages of EEG analyses, including data import, manual cleaning, ICA cleaning, filtering, custom epoching of resting data, power spectral analysis
    - Experience using several brain-computer-interfacing plugins: BCILAB, SIFT, NFT
- **FREESURFER**
    - Expert user; experience with surface and subcortical reconstruction, quality control/voxel-editing, and various parcellation/segmentation schemes
    - Expert user of the TRACULA pipeline
    - Early adopter of the new longitudinal pipeline in TRACULA
- **E-Prime**
    - Experience programming E-Prime tasks, customizing timings for fMRI tasks including block designs and event-related designs, exporting and E-merging data output
- **RedCap**
    - RedCap Administration, database design and programming
    - Experience with backend VBA-scripting with Excel
    - Experience with API development
- **Adobe Suite**
    - Adobe Illustrator and Photoshop for scientific illustration
    - Adobe InDesign for presentations
    - Muse/Dreamweaver: Website design, HTML basics, Search Engine Optimization (SEO)

ENGINEERED SOFTWARE

- Creator and developer of PyNets (https://github.com/dPys/PyNets), an open source platform for fully-automated and reproducible network analysis of resting-state and diffusion MRI
- Creator and developer of autoDTI (https://github.com/dPys/autoDTI), an open source UNIX platform for fully-automated analysis of diffusion MRI

COLLOQUIUM AND INVITED LECTURES

- Visiting developer to Nipype 2.0 code sprint. Massachusetts Institute of Technology (MIT). Boston, MA. 2018.
- Recipient of a visiting scholar grant to attend the Neurostorm Hackathon sponsored by the National Center for Brain Mapping. Woods Hole, MA. 2017.
- Regular attendee to Brainhack sponsored by the Organization for Human Brain Mapping (OHBM).
    - Selected as a keynote presenter at the OHBM Open Science Room. Vancouver, 2017.
- Participated in Summer Supercomputing Institute at the Texas Advanced Computing Center (TACC): A week-long workshop on high performance computing, data analytics, and scientific visualization.
- *Guest Lecturer*. "Automated Global Probabilistic Tractography." Brain Mapping Workshop (BMW). Arizona, 2016.
- *Guest Lecturer*. "Parallel Computing and Neuroimaging." Brain Mapping Workshop (BMW). Arizona, 2015.