Jake D. Rieke

Present Address
218 SW 10th Street
Gainesville, FL 32601
(941) 806-7097

Education

M.S. Biomedical Engineering — May 2016
Graduate Certificate in Entrepreneurship
GPA 4.00
University of Florida, Gainesville, FL

B.S. Biomedical Engineering — Dec 2014
Concentration in Neural Engineering
GPA 3.92
University of Florida, Gainesville, FL

Experience

Biomedical Engineer — Oct 2016 - Present
Brain Rehabilitation Research Center, Malcom Randall VAMC, Gainesville, FL

- Developed and maintained neuroimaging analysis pipelines
  - Preprocessing and modeling of functional magnetic resonance imaging (fMRI) signals in the SPM and CONN toolbox
  - Designed MATLAB package for real-time feedback of functional near-infrared spectroscopy (fNIRS) signals
  - Developed SLURM (simple linux utility for resource management) batch script for analysis of structural and diffusion MRI in the FreeSurfer package
- Collected and integrated data from multi-modal sources such as behavioral, electrophysioloigcal, and metabolic measures
- Performed descriptive and exploratory analyses, data visualizations, and regressions
- Trained new lab members, students, and staff

Quality Assurance Intern — May 2014 - Aug 2014
CAE Healthcare, Sarasota, FL

- Implemented and designed QA protocols for software and hardware components of a maternal/fetal childbirth simulator
- Verified accurate maternal/fetal physiological modeling and simulated clinical experiences (SCE's)
  - Ensured proper tracking of CPR metrics such as consistency of compressions and ventilations, as well as more drastic resuscitation methods such as intubation and defibrillation
  - Verified birthing mechanism function during normal and rare emergency scenarios, including interventional birthing maneuvers
- Designed protocol to test compatibility of new software release with previously released patient simulators

Research Programmer — May 2015 - May 2016
UF Health Shands, Gainesville, FL

- Developed MATLAB package for real-time image processing of fMRI data
- Implemented and compared performance of random forest and one-versus-rest (OvR) classifiers using SciKit-learn, a machine learning library for Python

- Collaborated with a clinician to develop software prototype

Team Member Jan 2015 - May 2015

UF Graduate Coursework, Gainesville, FL

- Collaborated with small interdisciplinary team to automate classification of inflammatory myopathies: polymyositis, dermatomyositis, and inclusion-body myositis
- Performed feature extraction using image processing techniques including contour detection, image segmentation, morphological operations, and color histograms
- Predicted type of inflammatory myopathy with Support Vector Machine (SVM)

Undergraduate Research Assistant May 2013 - April 2014

Brain Mapping Lab, UF, Gainesville, FL

- Proposed and secured funding from University Scholars Program
- Collected (electroencephalography) EEG data using BCI2000 software
- Presented research poster at undergraduate research symposium

Academic Honors

Undergraduate Poster Award	2014
University Scholars Program	2013
Anderson Scholar of High Distinction	2013
Marvin and Rosaline Brandua Engineering Scholarship	2011
Dean's List of Distinguished Students	2010 - 2014
Florida Academic Scholars Award	2010 - 2014

Publications (Under Review)

Rieke, JD, Lamb, DG, Davila, ML, Lewis, GF, Schmalfuss, I, Williamson, JB. Post-traumatic Stress Disorder Subsequent to Apparent Mild Traumatic Brain Injury. (submitted)

Gullett, JM, Porges, E, Woods, AJ, Lamb, DG, **Rieke, JD**, Thompson, P, Jehanshad, N, Nir, TM, Tashima, K, Cohen, RA. Alcohol Abuse and Infection Length Impacts Frontal White Matter in HIV. (submitted)

Publications (In Preparation)

Ravindran, A, **Rieke, JD**, Alcantara, JD, White, KD, Rana, M, Gunduz, A, Opri, E, Modarres, M, Sitaram, R, Daly, J. Differential Classification of fMRI-based brain activity associated with wrist extension and flexion using combined univariate and multivariate pattern analysis.

Computer Skills

Languages:	MATLAB, Python 2.7, R, Arduino/C++
Software:	SPM, CONN toolbox, FSL, FreeSurfer, NIRStar, HOMER2, IBM SPSS, Statistica, Neurobehavioral Systems Presentation, MS Office Suite
Techniques:	Task-based and resting-state fMRI, Diffusion-Weighted Imaging (DWI), fNIRS, Electromyography (EMG), Closed-loop systems