NICHOLAS A. DEL GROSSO

JOURNAL PUBLICATIONS

Broetz D., Del Grosso, N.A., Rea M., Ramos-Murguialday, A., Soekadar S.R., Birbaumer, N. "A New Hand Assessment Instrument for Severely Affected Stroke Patients." Journal of Neurorehabilitation. 2014; 34(3)

Benoit, J.B., Del Grosso, N.A., Yoder, J.A., Denlinger, D.L. "Resistance to Dehydration between Bouts of Blood Feeding in the Bed Bug, Cimex Lectularius, is Enhanced by Water Conservation, Aggregation, and Quiescence." American Journal of Tropical Medical Hygience. May 2007; 76(5):987-93.

RESEARCH EXPERIENCE

May 2013 - Present

Ludwig-Maximillians Universit\"{a}t — Prof. Dr. Anton Sirota

Programmed a 3D graphics engine in Python to build virtual reality system for freely moving rats, supervised students in programming, engineering, and cognitive science projects, organized weekly journal clubs, and ordered new equipment.

Aug 2012 - May 2013

Universit\"{a}t T\"{u}bingen — Prof. Dr. Christoph Braun

Wrote a research grant to study the top-down and bottom-up interactions by computational modeling information propagation in early sensory pathways as measured by MEG, designed and administrated an institute wiki, organized a student lecture series, and supervised two students' EEG research projects.

Nov 2011 - July 2012

Universit\"{a}t T\"{u}bingen — Prof. Dr. Niels Birbaumer

Programmed in Matlab a time-frequency and evoked potential analysis on three years' worth of MEG data assessing longitudinal changes in stroke patients receiving physiotherapy.

Oct 2012 - Nov 2012

Universit\"{a}t T\"{u}bingen — Prof. Dr. Cornelius Schwarz

In this lab rotation, I trained rats to perform whisking in response to barrel cortex stimulation viachronically-implanted electrodes, mapping stimulation sensitivity to each cortical layer.

Nov 2010 - March 2011

Universit\"{a}t T\"{u}bingen — Dr. Michael Barnett Cowan

Programmed an online EMG classifier in Matlab and Simulink to accurately detect finger movements within milliseconds for EEG coherence brain-computer interface training.

Dec. 2009 - Aug. 2010

Wittenberg University — Prof. Dr. Josephine Wilson

Built an NI-DAQ EEG system, programmed online analysis and data acquisition in Matlab and LabView, and confirmed its functionality in three different experiments. As a senior lab assistant, also worked as an aid for rat neurosurgery and noninvasive electrophysiology (skin conductance, EMG, EKG, and EEG) laboratory course sessions, which included planning and giving demonstrations on each method above.

June-Aug 2008 - June-Aug 2009

Duke University — Prof. Dr. Jennifer Groh

Trained Macaque monkeys to perform visual saccade tasks while mapping receptive fields in superior and inferior colliculus.

Aug 2007 - Dec. 2009

Wittenberg University — Prof. Dr. Michael Anes

Conducted three behavioral psychophysics studies on the hemispheric lateralization of face perception. Tasks included programming stimulus sequences in SuperLab, patient recruitment and management, data collection, and conference poster preparation.

Nov 2006 - March 2007

Wittenberg University — Prof. Dr. Jay Yoder

Measured dessication rates in the bed bug and isolated fungal growth in three species of cockroach. These studies resulted in a publication in a peer-reviewed journal and a poster presentation at an undergraduate research conference.

AWARDS

2015 2011 2008 SKILLS

- \textbf{Programming}: Python, Matlab, C#, GLSL, R, LabView, C, Bash, LaTeX
- \textbf{Graphics}: Blender, Adobe Suite (Photoshop, Illustrator, and InDesign), OpenGL, Google SketchUp, GIMP, Inkspace
- \textbf{Statistical Analysis}: Statistical Parametric Mapping (SPM), SPSS, R, Matlab Statistics Toolbox, Fieldtrip, gTec Analyze, BrainVision Analyzer
- \textbf{Languages}: English (Mother Tongue), German (Level B1), French (Level A1-2)
- \textbf{Wet Lab Skills}: Rat Neurosurgery, Animal Behavioral training (rats and monkeys), in vivo electrophysiology (single needle electrodes, chronically-implanted electrode arrays, noninvasive arrays of EEG electrodes and MEG sensors), Basic Electronics, Comfortable with building custom laboratory equipment
- \textbf{Stimulus Presentation}: Psychopy, Neurobs Presentation, Psychophysics Toolbox, OpenGL, Pyglet, SuperLab, RatCAVE
- \textbf{EEG System Experience}: BrainProducts, gTec, Grass Instruments, CTF

GOALS

- Obtain a PhD in cognitive neuroscience by studying multimodal sensory integration and sensorimotor interactions.
- Obtain teaching, project management, and laboratory experience sufficient to one day become a competent university professor.
- Build technical skills in a wide variety of fields in order to perform high-quality research at institutes with limited resources.

CONFERENCE PUBLICATIONS

March 2015

Interact Munich Demonstrating a Freely-Moving Virtual Reality Approach for Rodent Research

Nov 2014

Society for Neuroscience ratCAVE, A Novel Virtual Reality System for Freely-Moving Rodents.

Nov. 2012

NENA T\"{u}bingen Interpreting (M)EEG, A First Look at Dynamic Causal Modeling.

Introduced a probabilistic nonlinear modeling framework for interpretation of MEG and EEG data, along with the results of a pilot study in which we applied the approach.

Nov. 2011

NENA T\"{u}bingen The Intrinsic Bias During the Blind-Walking Task is Not Caused by an Aberrant Intrinsic Ground-Slope Model.

April 2010

Visual Sciences Society DIY ERPs, Designing inexpensive EEG systems for performing auditroy and visual cognitive studies.

March 2010

Butler Undergraduate Research Conference Discrimination and processing of deviant stimuli at the auditory cortex.

Sept. 2009

European Health Psychology Society Discrimination of attention-related and motor-related evoked activity by hemispheric comparison over the motor cortex.

May 2009

Visual Sciences Society Are Local Changes in Faces Really Local?

May 2008

Visual Sciences Society} Hemispheric specialization for face processing revealed by use of thatcherized and feature-distorted faces.

INDUSTRY EXPERIENCE

Technical Consultant UKT Psychosomatic Med. and Sports Med.

I evaluated and designed a solution for performing medical science studies in a placebo study, and taught the PhD student who carried out the study over several remote sessions and a few travel consultations.

Research Internship The Neuromarketing Labs

I completed set-up of an EEG laboratory, including software calibration and noise measurements. Designed and ran two experiments estimating the evoked responses of semantic agreement and price agreement, then analyzed the data. The results from the second experiment are the basis of Dr. M\"{u}ller's recently-published book, \emph{Neuropricing}. Currently volunteering as an EEG consultant by giving one-day workshops on Fieldtrip, SPM, and artifact correction methods.

December 9, 2015