## EEG and MEG Inversion Using Convolutional and Recurrent Neural Networks

Joaquin J. Casanova, *Member, IEEE*, Zachary D. Stoecker-Sylvia, *Member, IEEE*, Ryan Miyamoto, *Member, IEEE*, and Jenshan Lin, *Fellow, IEEE* 

Abstract—BCI, diagnostics - localize neural activity Measurement techniques dense sensors Average acros trials Typical inversion approach Our approach more simplified CNN/RNN/MLP Test data sets evaluate architectures for error and ability to generalize after training Key results

Index Terms-EEG, MEG, Localization, Neural networks.

## I. INTRODUCTION

THERE is a great need for interpretation of brain signals for both use in control of devices, for prosthetics, for example, or for disease diagnostics []. Sensor measurements include ... Problem of neuron localization or distribution of currents typical approaches our approach: max dipole

I wish you the best of success. [1]

mds

August 26, 2015

## II. METHODS

- A. Description of Neural Network Subsection text here.
  - Subsection text here
- B. HyperparametersC. Training and testing
  - 1) Datasets: Subsubsection text here. Audio Faces

III. RESULTS

IV. CONCLUSION

The conclusion goes here.

APPENDIX A

PROOF OF THE FIRST ZONKLAR EQUATION

Appendix one text goes here.

APPENDIX B

Appendix two text goes here.

ACKNOWLEDGMENT

The authors would like to thank...

## REFERENCES

- [1] A. Gramfort, M. Luessi, E. Larson, D. A. Engemann, D. Strohmeier, C. Brodbeck, R. Goj, M. Jas, T. Brooks, L. Parkkonen *et al.*, "Meg and eeg data analysis with mne-python," *Frontiers in neuroscience*, vol. 7, p. 267, 2013.
- J. Casanova and J. Lin are with the Department of Electrical and Computer Engineering, University of Florida, Gainesville, FL, 32611 USA e-mail: jcasa@ufl.edu
  - R. Miyamoto is with Oceanit.

Manuscript received

Michael Shell Biography text here.

PLACE PHOTO HERE

John Doe Biography text here.

Jane Doe Biography text here.