**Materials and Methods**

**Participants**

The sample was comprised of one participant right-handed, male, enrolled in a study examining brain differences and activation. Participant was screened to verify if met study inclusion criteria. After screening, participant completed informed consent. Once consent process completed, participant completed fMRI tasks inside the scanner. Participant was compensated for his participation. The Institutional Review Board at the university approved study procedures.

**Localizer Task Procedures**

Localizer task consisted of a block design task with multiple trials. Participant was presented with different scenes, faces and math equations and had to press a button depending on the instructions. When participant was presented with a scene, he needed to press a button if the scene contained water and another button if the scene did not contain water. The images were presented for a couple of seconds. In the face block portion, participant saw images of people of all genders, races and ethnicity, and needed to respond while the image was on the screen if the individuals on the images were females or males. Hemodynamic signal was convolved over all the face and scene periods of the task, and the onset times for each face and scene images were accumulated to grab the first. 3dDeconvolve (AFNI version 20.0.19; Cox, 1996) was used to calculate the deconvolution of the dataset stimulus time series (number of parameters = 18 [16 baseline; 2 signals]).

**Neuroimaging Data Collection and Preprocessing**

Neuroimaging data were acquired on a 3T Siemens MAGNETOM Prisma scanner equipped with a 32-channel head coil at the Center for Imaging Science at Florida International University. We collected a T2\*-weighted EPI sequence (TR = 1760 ms, TE = 35 ms, flip angle = 52 degrees, field of view = 1800 mm, phase encode direction = 0, slice acceleration = 3, voxel size = 2 mm isotropic). Two localizer tasks were collected with a total of 608 whole brain volumes (304 per localizer). Moreover, a T1 weighted structural scan (MPRAGE: TR = 2500 ms, TE = 2.9 ms, flip angle = 8 degrees, field of view = 256 mm, voxel size 1 mm isotropic) was collected. Data preprocessing were conducted using custom scripts using the following software packages, Neuroimaging in Python (version 3.7.6; Nipype version 0.12.1; Gorgolewski et al., 2011) pipeline: Analysis of Functional Neuroimages (AFNI version 20.1.00; Cox, 1996), FMRIB Software Library (FSL version 5.0.11; Smith et al., 2004), and FreeSurfer (version 6.0.0; Fischl, 2012). AFNI’s 3dToutcount was used to find the number of outliers at each volume. We included the automask function to clip off small voxels, the fraction function to obtain the fraction of outliers masked voxels at each timepoint and conducted Legendre polynomials. In order to realign scans across time and to correct for head motion, motion correction was performed using AFNI’s 3dvolreg. Artifact detection was conducted using rapidart with an intensity Z-threshold of 3.0 and a global threshold of 9.0. In addition, slice timing correction was conducted using AFNI’s 3dTshift command to correct differences in timing across the slices. We calculated the transformation matrix from EPI to Freesurfer using BBRegister command. This performs within-subject/ cross-modal registration. In order to reduce noise and remove high-frequency information, the data were spatially blurred with a 3D FWHM of 9 mm and 1 number of threads. Temporal smoothing was conducted using the adaptive mean filtering of width N 5 and the 3 point linear filter employing a Gaussian algorithm to remove low-frequency noise.

**MRI Data Analysis**

**Whole brain level analyses**

We used AFNI’s 3dFWHM and 3dClustsim to find corrected cluster sizes (size of box = 64, 64, 36; parameters = 3.125, 3.125, 3.3). We used a cluster-wise threshold of *p* = 0.05 and 44 voxels for the structural data (acf = 0.535161, 2.06143, 8.01576) and a cluster-wise threshold of *p* = 0.05 and 60 voxels for the non-structural data (acf = 0.618177, 5.24075, 28.4009).

**Anatomical Regions of Interest**

We identified our region of interest (ROI) by isolating the cortical area according to the activity during the localizer task. As our localizer task was motivated to examined how participants responded to recognizing females and males individuals based on faces presented, our ROI was comprised of the Fusiform Face Area (FFA) in the fusiform gyrus consistent with previous literature (Berman, et al. 2010). According to Berman and colleagues (2010), the FFA responds more to faces compared to other type of stimuli.

**Task Neuroimaging Data Analysis**

A general linear model (GLM) approach was utilized to analyze the functional neuroimaging data in FSL. As regressors of no interest we included: motion (x, y, z translations; pitch, roll, yaw rotation), derivatives of the motion parameters, regressor for each outlier time-point that exceeded outlier thresholds and Legendre polynomials. Additionally, for the test model we included for regressors of interest: scene before baseline, faces before baseline, scene before condition and faces before condition.

**References**

Berman, M.G., Park, J., Gonzalez, R., Polk, T.A., Gehrke, A.… Jonides, J. (2010).Evaluating functional localizers: The case of the FFA. *Neuroimage*, *50(1)*, 56-71. doi: 10.1016/j.neuroimage.2009.12.024.