COMP 495 Mentored Research Contract

STUDENT INFORMATION

Name Mattheus Victor Guimaraes Bezerra

RESEARCH INFORMATION

Project description:

Create two machines designed to interpolate ADHD data to be used in research.
The first should be able to generate interpolated data given a set of infant MRI data at 0 months and 24 months old. It should be able to fill in gaps for missing data at a 12 month mark. This should also contain learning capabilities as it progresses to generate more accurate descriptions of data. This will require hands-on experience with machine learning, and studying infant MRI data outside of meeting times.
The second should be able to detect and mark interpolated data as non-real with learning capabilities as it progresses. It is to be coupled with the first machine's data to detect if data has been generated or is genuine. The collaboration between machines will allow both to progress, and the student to develop intuition on machine learning and data analysis.
Following their development, they may be used in conjunction with other projects to see how interpolated data can affect current studies and provide more data.

Meeting requirements:

Weekly meetings to discuss code and ask questions. Must be at times where both instructor and student can meet face-to-face. Can be used for clarification of multiple topics, and will require some start of semester lectures to adequately prepare the student.

Reading assignments:

Research materials on ADHD development in infants.
Machine learning and Interpolation guides.
Applications of Artificial Intelligence.
Guides to Machine Learning.
Sample code of other machine learning projects that allow for analysis and comparison.

Written assignments:

Generated interpolated data at multiple stages of both machines.
Feedback from machine that detects generated data.
Comparison of updates and progress made between machines in the accuracy of their respective results.

Software or hardware deliverables: (The deliverables should include the approximate scope and depth of work.)

Multiple versions of the machines that generate and detect interpolated data should be submitted at their various stages of progress.
Monthly submissions to be reviewed and critiqued.

Other assignments (e.g., presentations):

Presentation of both assignments to the instructor.

Assessment Plan:

The assessment of the student will be based upon their ability to learn and create the assigned projects. It will be based on effort, capabilities developed within the project, and progress made within the assignment.

Retention: This contract is to be retained for a minimum of four years. Last update: 30 August 2018