SIX MONTHLY PROGRESS REPORT OF RESEARCH SCHOLARS

Period: July to December, 2017

Department of Computer Science and Engineering

1. **Name :** R Janani

2. **Registration No. :** CS17S009

3. **Registered for :** MS by Research

4. **Specialization :** Computer Vision

5. **Category :** HTRA

6. **Guide :** Prof. Sukhendu Das

7. **Date of Joining :** 10-07-2017

8. **Date of Registration :** 10-07-2017

9. **Date of DC Meetings :**

10. **Area of Research :** Computational Brain Research

11. **Date of Comprehensive Examination :**

12. **Details of Course Work :**

Sl. No.	Course No.	Course Title	Sem	Course Type	Credit	Grade
1	CS6015	Linear Algebra and Random Processes	1	Core	4	B
2	CS5800	Advanced Data Structures and Algorithms	1	Elective	4	C
3	CS6690	Pattern Recognition	1	Elective	4	C
4	ID6020	Introduction to Research	1	Core	2	Pass
5	CS6021	Introduction to Research	1	Core	2	Pass

13. **Seminar Dates :**

Signature of the Guide   **Signature of the Scholar**

(Prof. Sukhendu Das)   **Date: 15-12-2017**

Progress Report

1. **Problem Definition**

   Computational Brain Research is the broad topic that is going to be dealt with.

2. **Work Done Before Review** : Not Applicable

3. **Course Work**

   Three courses had been taken up this semester apart from Introduction to Research course. In Pattern Recognition course, I got to learn various pattern recognition techniques. I had to do five assignments which gave me a deeper insight on major pattern recognition algorithms like Singular Value Decomposition Eigen Value Decomposition, Bayes Decision Theory, Gaussian Mixture Models, Hidden Markov Models, Neural Networks, Support Vector Machine, Fisher Linear Discriminant Analysis, Principal Component Analysis, etc.

   The second course taken up was Linear Algebra and Random Processes. The course had two sections. In the first section, I got to learn linear algebra while the second half dealt with probability and random processes. Two assignments were done, one in linear algebra which was a programming assignment and one in probability which was a written assignment.

   The third course taken was Advanced Data Structures and Algorithms where I got a good understanding of the design and analysis of different algorithm design techniques like divide and conquer, greedy technique, dynamic programming and iterative algorithms. Computational complexity of decision problems was also covered.

4. **Research Work**

   I am currently doing literature survey on computational brain research. I have been doing a study on image processing, computer vision and neuroscience which would be of help during the research work. I have also started to look into processing and analyzing GFP and Nissl type data of mouse brains.

5. **Future Plans**:

   - Completion of data acquisition by December

   - Completion of initial literature survey

   - Take up the following courses next semester: Computer Vision(CS6350), Concepts in

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Statistical Learning Theory(CS6464), Deep Learning(CS7015) and Image Signal Processing(EE5175)

6. **Visible Output**: Dataset acquired.