CSC 490 Seniors’ Project

Dr. Longfei Wu

The senior projects of my interests basically include everything related to smartphone. Students can develop mobile applications for a variety of purposes, e.g., text recognition, speech recognition, games, etc. Students are suggested to own at least one Android smartphone and a personal computer.

Dr. Vassil Yorgov

Recently 1566 codes of length 4 over a ring, R, with 2^17 elements were found [1]. Every such code is defined with a 2x4 matrix, A, with entries from R. Every element of R determines a binary vector of length 17 and a 16x17 circular matrix having that vector as a first row. Our task is to determine the weight distribution of each of the 1566 binary codes, C, described above and to see if anyone of them realizes new values of the two parameters.

Dr. Sambit Bhattacharya

Joint Analysis of Natural Language Text and Video Data: Humans can effortlessly describe visual scenery and events in natural language, and can also think of, or select visual examples of objects and events described in natural language. However until recently these tasks have been beyond the capabilities of computer hardware and software systems. Rapid progress in Neural Networks with Deep Architectures (also known as Deep Learning) has produced multiple approaches that partially solve this problem using novel architectures and massive datasets. One of the potential applications of joint text and video analytics is Situation Awareness (SA). Technical approaches of the project include developing a recurrent neural network, specifically a long-short term memory (LSTM) network. A region based deep convolutional neural network (RCNN) will be created to detect objects in visual scenery to support query and information retrieval from visual data.

Dr. Sambit Bhattacharya

Deep Learning Approaches for Biomedical Image Analysis: a three dimensional convolutional network (3DCNN) will be developed for volumetric segmentation of sub-cellular structures in microscopy images of epithelial cells.

Dr. Sambit Bhattacharya

Reinforcement Learning for Enhanced Game Playing Strategies in Multi-player Environments

Dr. Daniel Okunbor

Develop a mobile application for the Ise (Edo) version of the Owari game, the African king of games. The Ise version uses a different strategy from the current mobile app.

Dr. Daniel Okunbor

Develop Python modules for different homomorphic encryption algorithms building of the existing Python-Paillier Library (phe).

Dr. Daniel Okunbor

Develop a graphical user interface (GUI) for the A5/2 and A5/3 ciphering algorithms for Global System for Mobile Communications (GSM) networks.

Dr. Albert Chan

Dr. Chan is interested in committed students. Go and discuss a topic of your choice with him. He is interested in mobile applications.

Dr. Mingxian Jin

Dr. Jin is interested in committed students. Do and discuss a topic of your choice with her. She is interested in software engineering projects.

Links for project ideas

<http://cs.utdallas.edu/utdesignfall15/>

<https://cs.stanford.edu/degrees/ug/SeniorProject.shtml>

<https://www.cse.uconn.edu/undergraduate-studies/senior-design-projects/>

<https://www.cs.drexel.edu/~krandick/teaching/CS452/projects/2004/index.html>

<http://www.se.rit.edu/projects/browse>

<https://www.cs.purdue.edu/news/articles/2017/software-engineering-fall-2017.html>