I/UCRC CAKE Executive Summary - Project Synopsis	Date: February 5, 2016
Project Title: NSF I/UCRC: Deep learning techniques on HPCC platform for multimedia big data	
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Center/Site Director: Borko Furht	**Type: New**
Project Leader: Borko Furht	**Proposed Budget**: $35,678

Project Description: We will work on deep learning on HPCC platform for multimedia big data. The first step is to evaluate available tools and deep learning implementations on clusters (cafe-on-spark, DL4J looks interesting) and develop/select implementations for the HPCC platform. We will examine big data surveillance, cloud compression, and medical imaging applications and focus on one area for implementation and analysis.

Experimental plan: We intend to work closely with LexisNexis researchers and use experimental data from LN databases.

Related work elsewhere: The project will benefit for code and development environment available from LN databases.

How this project is different: This project offers us an opportunity to gets hands-on experience with next-generation of deep learning technologies and their applications on multimedia big data.

Milestones for the current proposed year: The project milestones include: 1) Familiarize with the LexisNexis HPCC system and software include ECL language, 2) Implement present tools and deep learning implementations on HPCC cluster. 3) Examine some applications for deep learning algorithms, including surveillance, cloud compression, and medical image applications.

Deliverables for the current proposed year: Deep learning software prototypes on HPCC platform including 2-3 research and survey papers.

How the project may be transformative and/or benefit society: Deep learning is relatively new technique and applying it on LN HPCC system will be beneficial for society. Specifically, using big data multimedia applications may provide some new results and innovations in the areas of medical images, surveillance, and cloud computing.

Research areas of expertise needed for project success: The expertise required includes, C, C++, MATLAB programming expertise. In addition, some background in deep learning techniques and technologies, and multimedia systems is required.

Potential Member Company Benefits: The membership companies including LexisNexis will have benefits by having software prototypes of deep learning techniques on the HPCC platform.

Progress to Date: Preliminary study of deep learning techniques and the understanding of the LexisNexis'HPCC system.

Estimated Start Date: 2/15/2016	**Estimated End Date**: 12/15/2016

The Executive Summary is used by corporate stakeholders in evaluating the value of their leveraged investment in the center and its projects. It also enables stakeholders to discuss and decide on the projects that provide value to their respective organizations. **Ideally, the tool is completed and shared in advance of IAB meetings to help enable rational decision making.**