I/UCRC FAU CAKE Executive Summary - Project Synopsis	Date:

Project Title: Machine Learning Algorithms for Uses Cases in Auto Industry	Phone : (561) 297-3180	E-mail : bfurht@fau.edu

Center Director: Borko Furht, Ph.D.	Type: (New or Continuing): New

Project Leader: Hill Zhu, Ph.D. (xzhu3@fau.edu)	Proposed Budget: 39,809

Project Description: This project will leverage advanced analytics/machine learning and identified data sources to enable better decisions and smart actions in identified business domains and use cases. Currently, advanced analytics/machine learning is not used in these targeted areas even though the potential benefits may be significant. FAU has extensive experience with machine learning, and will work in partnership with JM Family's R&D team to develop machine learning algorithms for the selected use cases (insurance claim analysis). Additionally, FAU will work in partnership with JM Family's R&D experts to develop prototype systems for POCs (proof-of-concepts) that will present the outcomes of the machine learning algorithms in a user-friendly format. If JM Family, as a partner in this project, proposes the implementation of their patents or their ideas (expressed in form of white papers), the intellectual property related to it will belong to JM Family.

Experimental plan: The experiments discussed in this project will include data cleaning, data integration, and creation of a data repository, development of machine learning algorithms for the targeted domains/use cases, testing of these algorithms, demonstrating/reporting the accuracy of the outcomes and presentation of the outcomes in a user-friendly format.

Related work elsewhere: N/A

How this project is different: In this project, common machine learning algorithms will be applied to business domains and use cases in the auto industry. Similar machine learning techniques are used in other industries such as retail, finance, etc to address different use cases.

Milestones for the current proposed year: The major milestones for this project are to
- Preparation: Data acquisition and business domain knowledge understanding
- Data Analysis: Clean and integrate identified data sources, create a data repository, and conduct knowledge discovery tasks
- Algorithms: Develop machine learning algorithms for the targeted use cases and demonstrate accuracy of outcomes
- Streams: Develop prototype systems for POC and validate outcomes in a user-friendly format
- Publications: A joint research publication and a SpringerBrief book.

Deliverables for the current proposed year: The deliverables are the integrated data repository, machine learning algorithms and prototype systems for POC to demonstrate the output of these algorithms in a user-friendly format.

How the project may be transformative and/or benefit society: By applying machine learning algorithms to unique business problems and use cases; currently there are not off-the-shelf solutions in the market for these problems and use cases.

Research areas of expertise needed for project success: Experience in machine learning algorithms, data integration and data cleaning, relational databases and SQL, big data solutions such as Hadoop, cloud architectures, and software development.

Potential Member Company Benefits: CAKE member companies will benefit from the experience FAU will gain in applying machine learning to complex business problems and use cases.

Progress to Date: We are in the process of defining the use cases.

Estimated Start Date: 11/7/21016	Estimated End Date: 11/06/2017

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. **<u>Ideally, the tool is completed and shared in advance of IAB meetings to help enable rational decision making.</u>**