A Novel Computational Method to Capture FPGA Technology Trends from Patent Information

Masashi Shibata
Graduate School of Sciences and
Technology for Innovation
Yamaguchi University
Yamaguchi, Japan
g501wc@yamaguchi-u.ac.jp

Masakazu Takahashi
Graduate School of Innovation and
Technology Management
Yamaguchi University
Yamaguchi, Japan
masakazu@yamaguchi-u.ac.jp

Abstract

This paper provides a novel trend analysis of FPGA development with Machine Learning. Recently, demands for the computing power are expanding due to reform of industrial structure such as the Industry 4.0 and the explosive expansion of AI. In this paper, we reveal the technical development trend of the leading FPGA companies from the patent information with Machine Learning. We focus on the classification codes in the patent and employ Link Mining method as the analytical method. Link Mining is a conventional method to analyze the structural features of things. It simplifies the objects and the relations as the nodes and the edges. With the proposed method, we succeed in revealing the companies' focused technology fields, the transition of focusing areas, and their differences and common points from the results of extracting the graphs' features.