




Company Description

BCAM is the Research Center on Applied Mathematics created with the support of the Basque Government and the University of the Basque Country, which aims to strengthen the Basque science and technology system, by performing interdisciplinary research in the frontiers of mathematics, talented scientists' training and attraction, so the excellence of our results are recognized by the Society.

Information

 Deadline: 2021-11-30
 Category: Business
 Province: Bizkaia

 Country: Basque Country
 City: Bilbao

Company

BCAM



Main functions, requisites & benefits

Main functions

The emergence of vast amounts of unlabeled, non-euclidean, data have motivated a relatively recent interest in the development of novel algorithms for learning from many different kinds of knowledge representations such as graphs, where the knowledge is represented in the form of vertices and edges between them. This kind of data appears frequently in the cybersecurity domain and especially in the detection of abnormal behaviour in computer networks. In the cybersecurity area we may encounter graphs with a large number of vertices, nodes and complex dynamics. Therefore, novel and efficient algorithms for learning from graphs are of paramount importance. In the graph domain, there are several interesting tasks from a machine learning perspective, such as: node level prediction, edge level prediction or graph level prediction of some interesting properties. In addition, the data itself can provide more or less useful information depending on the application, for example: node level features, edge level features or graph level features. From a different perspective, we may have the transductive setting, in which the graphs in the data set share the same structure or the inductive setting in which the graph structure changes in time. We are interested in the development novel Graph Neural Network approaches to deal with complex networks (graphs with a large number of vertices and edges). Our goal is to be able to detect abnormal behavior in computer networks in order to provide security by design in a number of industrial applications.

Requisites

Bachelor's or Master Degree preferable in Physics, Mathematics, Computer Science, or related fields.

