PRIVACY PRESERVING BACK-PROPAGATION NEURAL NETWORK LEARNING MADE PRACTICAL WITH CLOUD COMPUTING

ABSTRACT:

To improve the accuracy of learning result, in practice multiple parties may collaborate through conducting joint Back-Propagation neural network learning on the union of their respective data sets. During this process no party wants to disclose her/his private data to others. Existing schemes supporting this kind of collaborative learning are either limited in the way of data partition or just consider two parties. There lacks a solution that allows two or more parties, each with an arbitrarily partitioned data set, to collaboratively conduct the learning. This paper solves this open problem by utilizing the power of cloud computing. In our proposed scheme, each party encrypts his/her private data locally and uploads the cipher texts into the cloud. The cloud then executes most of the operations pertaining to the learning algorithms over cipher texts without knowing the original private data. By securely offloading the expensive operations to the cloud, we keep the computation and communication costs on each party minimal and independent to the number of participants. To support flexible operations over cipher texts, we adopt and tailor the BGN “doubly homomorphic” encryption algorithm for the multiparty setting. Numerical analysis and experiments on commodity cloud show that our scheme is secure, efficient, and accurate.
EXISTING SYSTEM

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PROPOSED SYSTEM

In our proposed scheme, each party encrypts his/her private data locally and uploads the cipher texts into the cloud. The cloud then executes most of the operations pertaining to the learning algorithms over cipher texts without knowing the original private data. By securely offloading the expensive operations to the cloud, we keep the computation and communication costs on each party minimal and independent to the number of participants. To support flexible operations over cipher texts, we adopt and tailor the BGN “doubly homomorphic” encryption algorithm for the multiparty setting. Numerical analysis and experiments on commodity cloud show that our scheme is secure, efficient, and accurate.
HARDWARE REQUIREMENTS:

- Processor - Pentium III
- Speed - 1.1 Ghz
- RAM - 256 MB (min)
- Hard Disk - 20 GB
- Floppy Drive - 1.44 MB
- Key Board - Standard Windows Keyboard
- Mouse - Two or Three Button Mouse
- Monitor - SVGA

SOFTWARE REQUIREMENTS:

- Application Server : Tomcat 5.0/6.X
- Front End : HTML, Java, Jsp
- Scripts : JavaScript
- Server side Script : Java Server Pages
- Database : Mysql 5.0
- Database Connectivity : JDBC
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