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# Performance Optimization of Big Data Transfer in High-performance Networks: A Reinforcement Learning Approach

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## Computer and Information Science Undergraduate Project Topics and Ideas

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***Title:***

Performance Optimization of Big Data Transfer in High-performance Networks: A Reinforcement Learning Approach

***Author:***

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***Difficulty:***

Moderate

***Specialization:***

Computer and Network Security

***If other, please specify:***

***Most Appropriate Course:***

Project II

***Brief Description:***

Choosing optimal parameter values for big data transfer in HPNs

***Number of students needed:***

1

***Outcomes and Deliverable:***

Source code; research paper

***Skills Required:***

Understanding of machine learning algorithms or willing to learn about them; programming skills in Python and Skikit-learn libraries

***Available Resources:***

Domain knowledge; code base; testbed

***Program Goal:***

CISC 1.1: Mathematical Analysis, CISC 1.2: Sound Reasoning, CISC 1.3: Develop Solution CISC 2.2: Software Platform, CISC 2.3: Networking, CISC 2.4 Data Structure, CISC 2.5 Analysis of Algorithms CISC 3.1: Explore New Methodologies CISC 4.1: Written Communication, CISC 4.2: Oral Communications

***Student Learning Outcomes:***

1a: The student should be able to analyze a problem in a manner that facilitates the design of its solution., 1b: The student should be able to apply relevant principles of computing during their analysis of a problem., 2b.:Student is able to develop a software solution from a formal design specification.