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| Student Name: | Jack Fennell | | Student Number: | C00220386 |
| Working Title: | Develop and train an artificial neural network to control a simulated swarm of bees. | | | |
| Description: | I plan on creating an artificial neural network that will be trained to control a swarm of bees. I will do this using a feedforward neural network to simulate the behavior of an animal brain. In feedforward, connections between each of the nodes does not create a cycle. The swarm will take information inside the game and act according to this information. | | | |
| Reasons for selecting project: | | I have an interest in neural networks as I find the way they replicate haviour of the brain’s learning function and use the said learning to understand text, images and patterns. There are many types of neural networks and animal behaviour is based off a feedforward one which is the one I chose to explore. | | |
| Proposed research content: | |  | | |
| External links (if applicable): | | * [Applications of Artificial Neural Networks in Games; An Overview](https://pdfs.semanticscholar.org/95c7/61c3c44a52dc15acefa50c8a247abd865761.pdf) * [Feedforward neural network](https://en.wikipedia.org/wiki/Feedforward_neural_network) * [Training\_a\_Feed-Forward\_Neural\_Network\_Using\_Artificial\_Bee\_Colony\_with\_Back-Propagation\_Algorithm](https://www.researchgate.net/publication/286316681_Training_a_Feed-Forward_Neural_Network_Using_Artificial_Bee_Colony_with_Back-Propagation_Algorithm) * [A Method for Group Formation Using Genetic Algorithm](https://pdfs.semanticscholar.org/2909/4cfa7ba2683dde9b89b4f10754416985d5d5.pdf?fbclid=IwAR3DLe_DVnPM58IScgctiCAQw8nEHHwXk9wIr4l_2jdvXnWIalas9HUlE8Q) | | |
| Hardware requirements: | | Windows computer. | | |
| Software requirements: | | SFML (Visual Studio). | | |
| Other requirements: | |  | | |

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| Signed: | | Date: |
| **For Office Use Only** | | |
| Approved/Not  Approved: | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
| Reasons for not approving project: |  | |
| Conditions attached to approving project: |  | |
| Approved/Not Approved: | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
| Name of Supervisor: |  | |
| Signed: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |