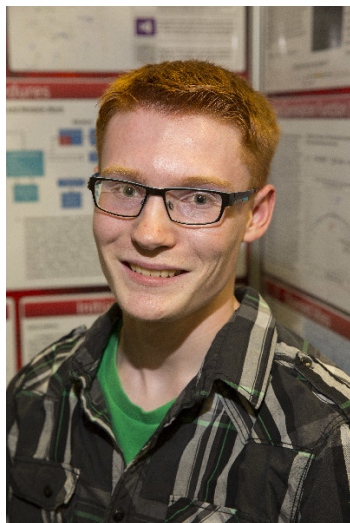


CWSF 2014 - Windsor, Ontario



Kyle Plamondon

Simulating the Evolution of the Hyades Star Cluster

Challenge: Discovery

Category: Senior

Region: Northern British Columbia

City: Fort St John, BC

School: North Peace Secondary

Abstract: Computer simulations have become the new era of scientific work. Using scientific programming in Python, 3D simulations calculated the positions of stars inside the Hyades cluster for a series of masses, exporting to my visualization program (NBodyVis) built in C#. Using statistics, a correlation of the cluster's radius to the star-mass determined a theoretical mass for the Hyades cluster with an error percentage of 0.66%.

Biography

Last year, similar research had been done on this topic area but at a much more simplistic form. After attending ISSYP and getting input from some Professors, I was able to develop this year's project. Narrowing down to what would be improved took time, but it was clear that accuracy was the main goal. With the implementation of calculus, the simulations were visually and quantitatively more accurate (although this was not the only improvement). Furthermore, being a grade 12 student further investigations would be done as a project for University. I plan to go into electrical/software engineering so there is some room to still add my project. The reasoning for this area of study, and this project, is simply that I enjoy computer programming. Although I didn't start until the beginnings of last year's project, since then I have developed a fair amount of products. In addition, I consider myself fairly well rounded, playing sports throughout middle-school and high-school. Which due to CWSF being at the time of Provincials, I still haven't been able to compete in Badminton. Lastly, those wanting to go far should consider their analysis and communication of such; statistics is huge at CWSF, show your accuracy.

Awards

Value

Excellence Award - Senior - Bronze Medal Sponsor: Nuclear Waste Management Organization	\$100
University of Ottawa Entrance Scholarship Senior Bronze Medallist - \$1000 Entrance Scholarship Sponsor: University of Ottawa	\$1 000
Western University Scholarship Bronze Medallist - \$1000 Entrance Scholarship Sponsor: Western University	\$1 000
Total	\$2 100

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