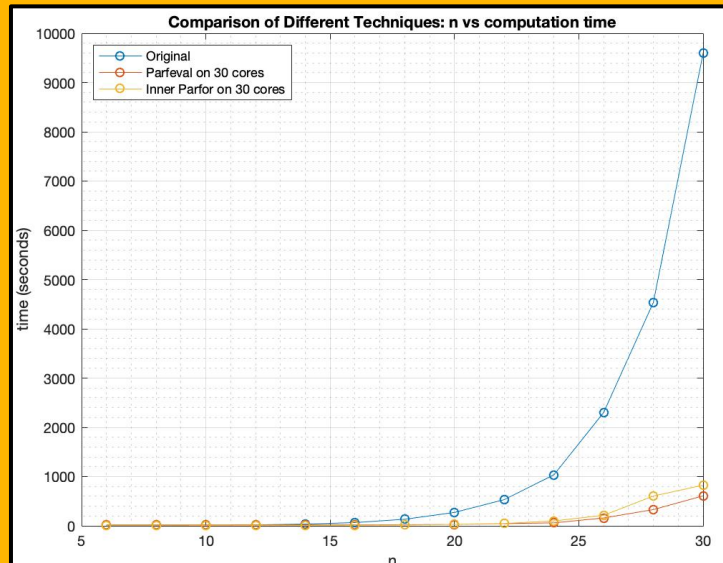
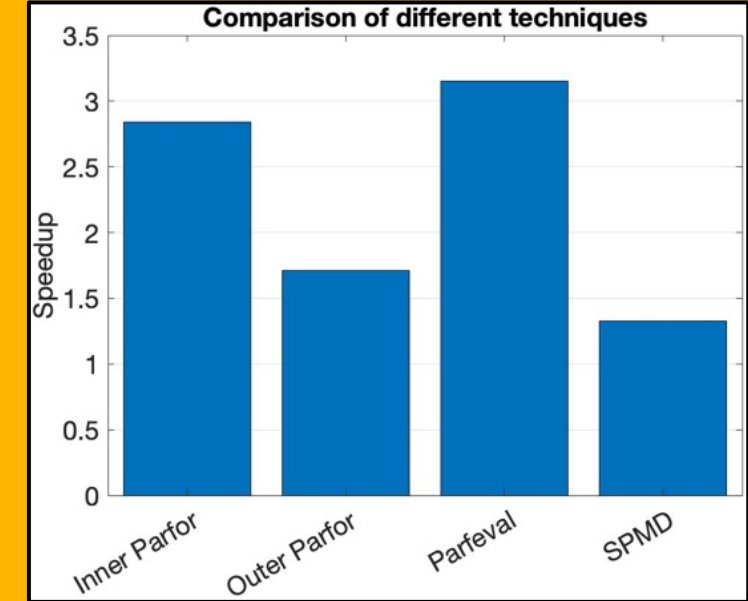


- A 5G spherical decoder simulation took up to six days to generate results.
- Worked with Dr Ryan Grammenos and the CIS Group at UCL to speed up the scripts

Method:

- Studied the relationship between execution time and the various factors affecting it (n, m, alpha, Number of Blocks of Data, Eb No etc)
- Studied the various parallel computing techniques and implemented the ones best suited for this particular kind of problem
- Essentially the challenge was to break down one big problem into as many smaller independent problems as possible.



- Did extensive testing to compare the performance of the various techniques
- Scaled up the best performing algorithms onto the Myriad cluster for further testing and optimization.

Highlights:

- Meaningful Impact: The new code is already being used by the CIS Group
- Submitted the paper for peer review in the Journal of Student Research (JoSR)
- MathWorks expressed interest in publishing our work in the MATLAB Digest

Original Script	505720 seconds ≈ 5.8 days
First Prototype	196280 seconds ≈ 2.25 days
Second Prototype	166090 seconds ≈ 1.9 days
Third Prototype	36104 seconds ≈ 10 hours
Final Version	28745 seconds ≈ 8 hours

(n = 40)

Results:

17x improvement in execution time.