

Research Report

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review of the issues

- Make NLR **work with triangle loop boundaries**
- Energy Tuning Project
 - Lulesh benchmark using PPCG
 - PNNL benchmark

Progress and Problems

- Reconstruct Loops from Triangle
 - Discussed with Professor Ketterlin and figured out why NLR(nested loop recognizer) failed at triangle loop boundaries.
 - It turns out that NLR cannot reconstruct loops whose innermost loop may only iterate less than three times (2 for interpolation, 1 for verification)
 - Two possible fixes
 - Post processing : cannot be applied in general
 - Change prediction (machine learning) mechanism: complex

The Plan

- Find out how to change **the prediction mechanism** of NLR to reconstruct triangle loop bounds
 - make NLR more smart by ensuring line information is read and used
- May also try post-processing