

Expressing Optimisations as Rewrites



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Math

$$C_{ij} = (AB)_{ij} = \sum_k A_{ik} B_{kj}$$



Functional

```
val mm = fun (A, B) =>
  map(fun (aRow) =>
    map(fun (bCol) =>
      reduce(add, 0.0f, map(mult, zip(aRow, bCol)))
    )), transpose(B)), A)
```

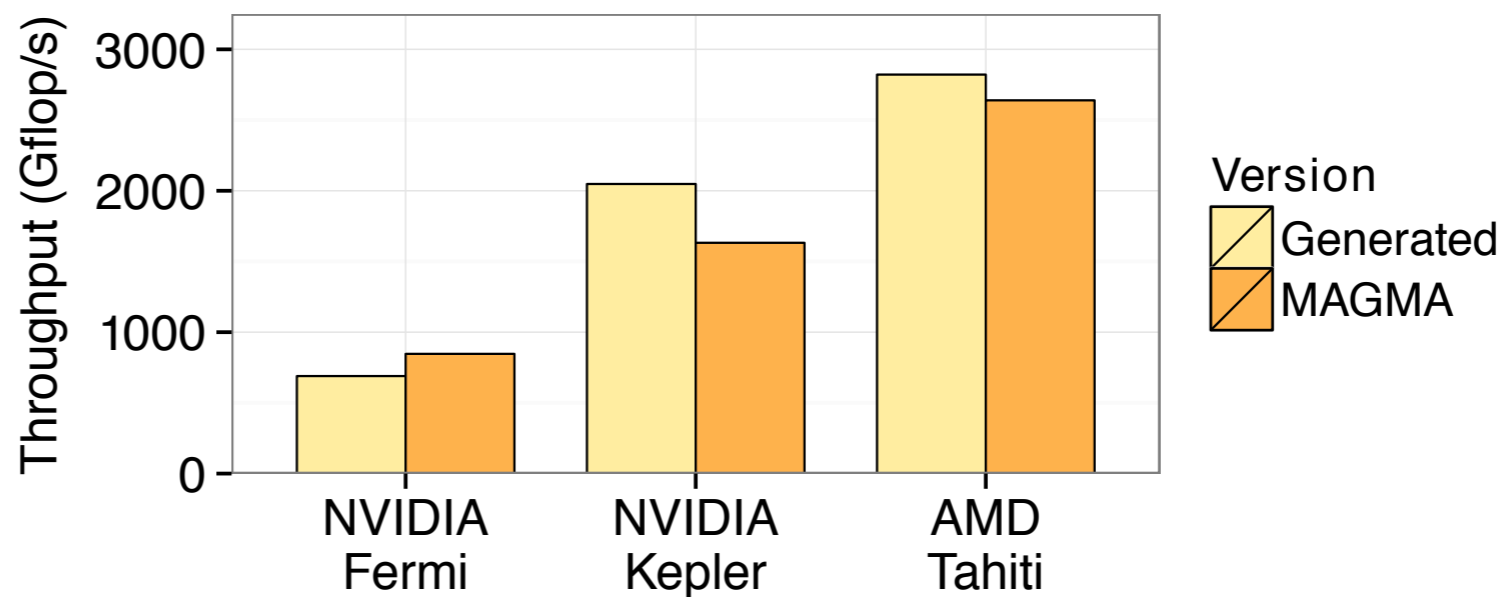


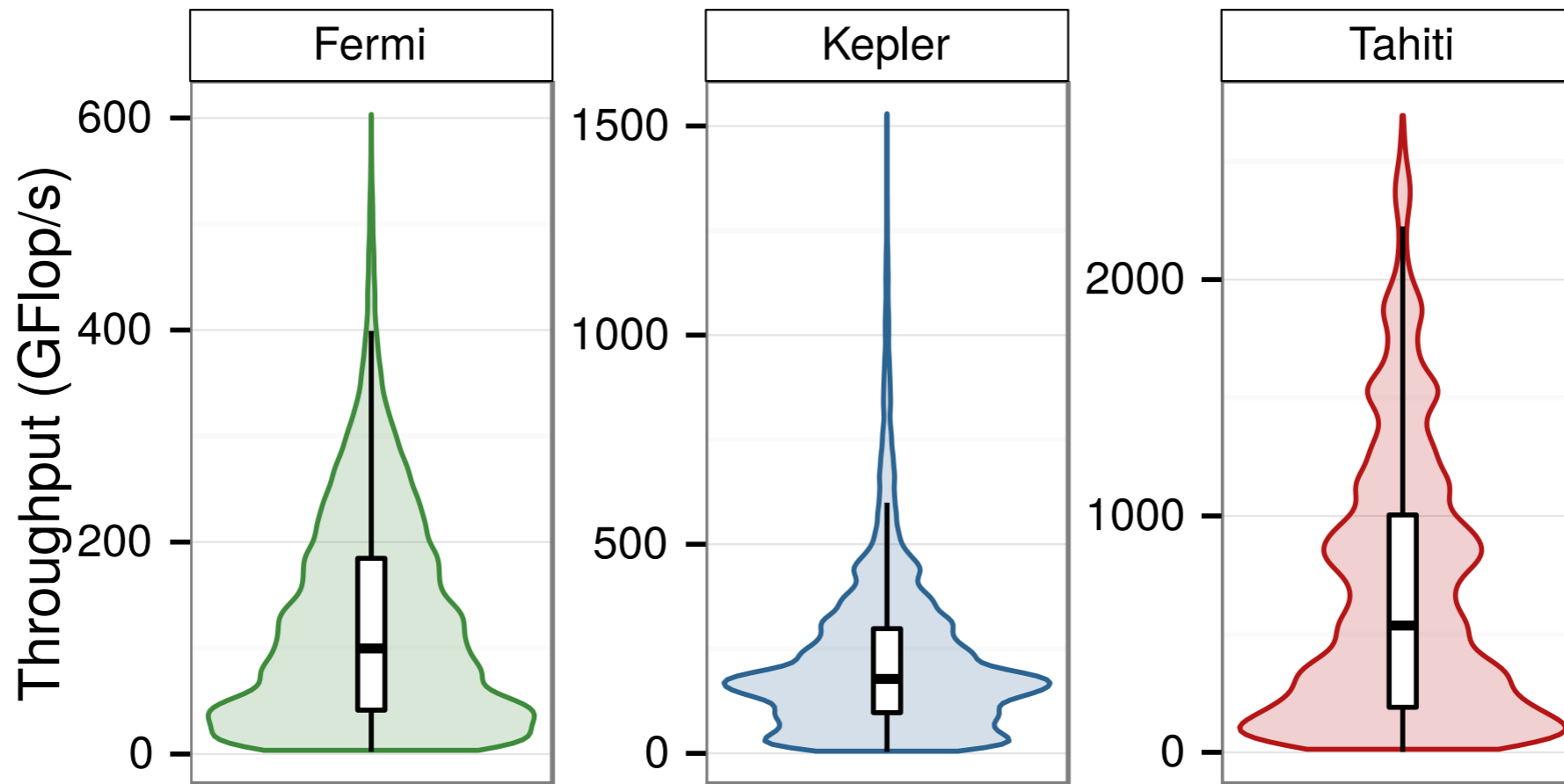
Optimisation

Rewriting



Results





- Extracting features from the functional expression
- Building a statistical model
- Using it to guide the search