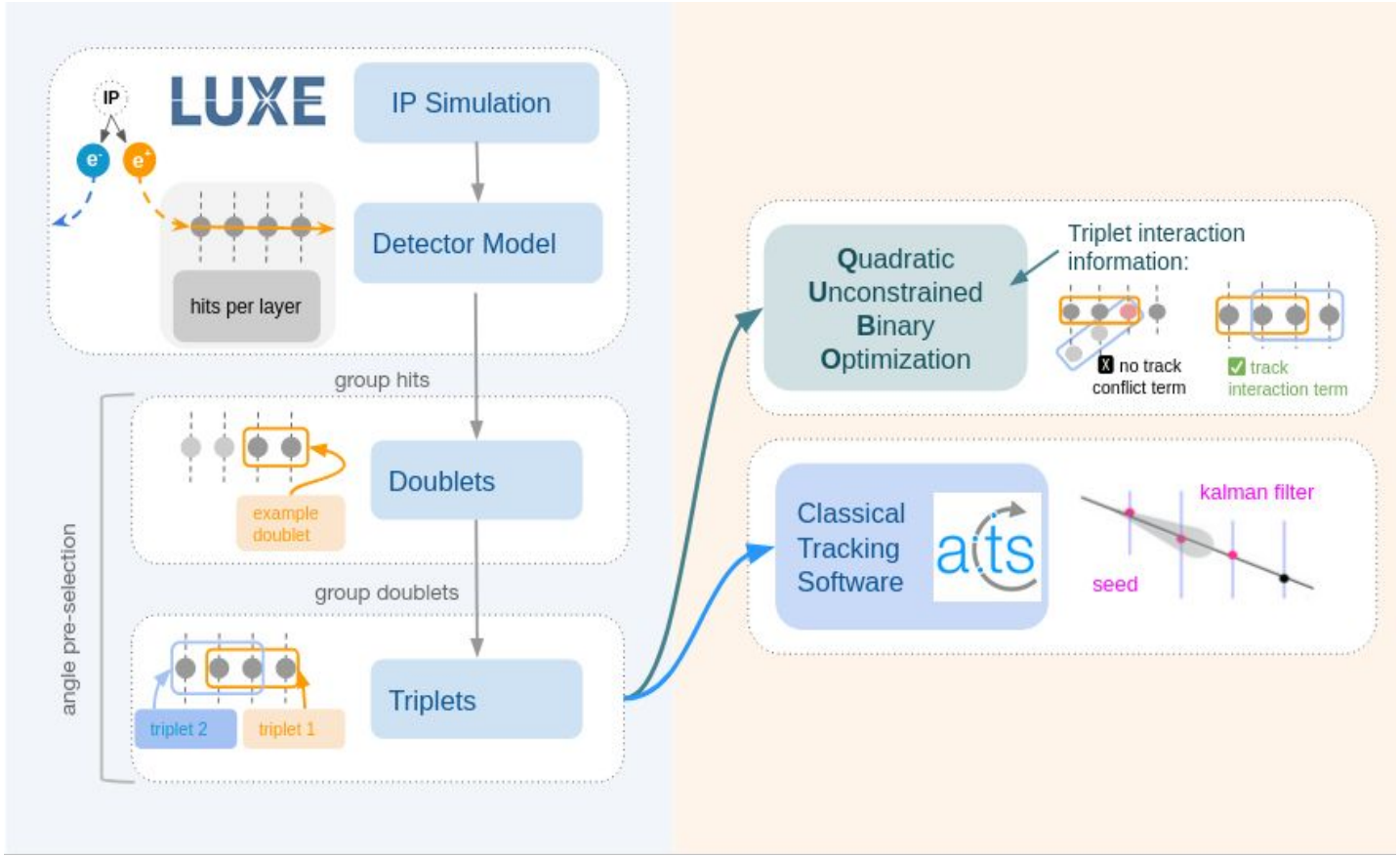
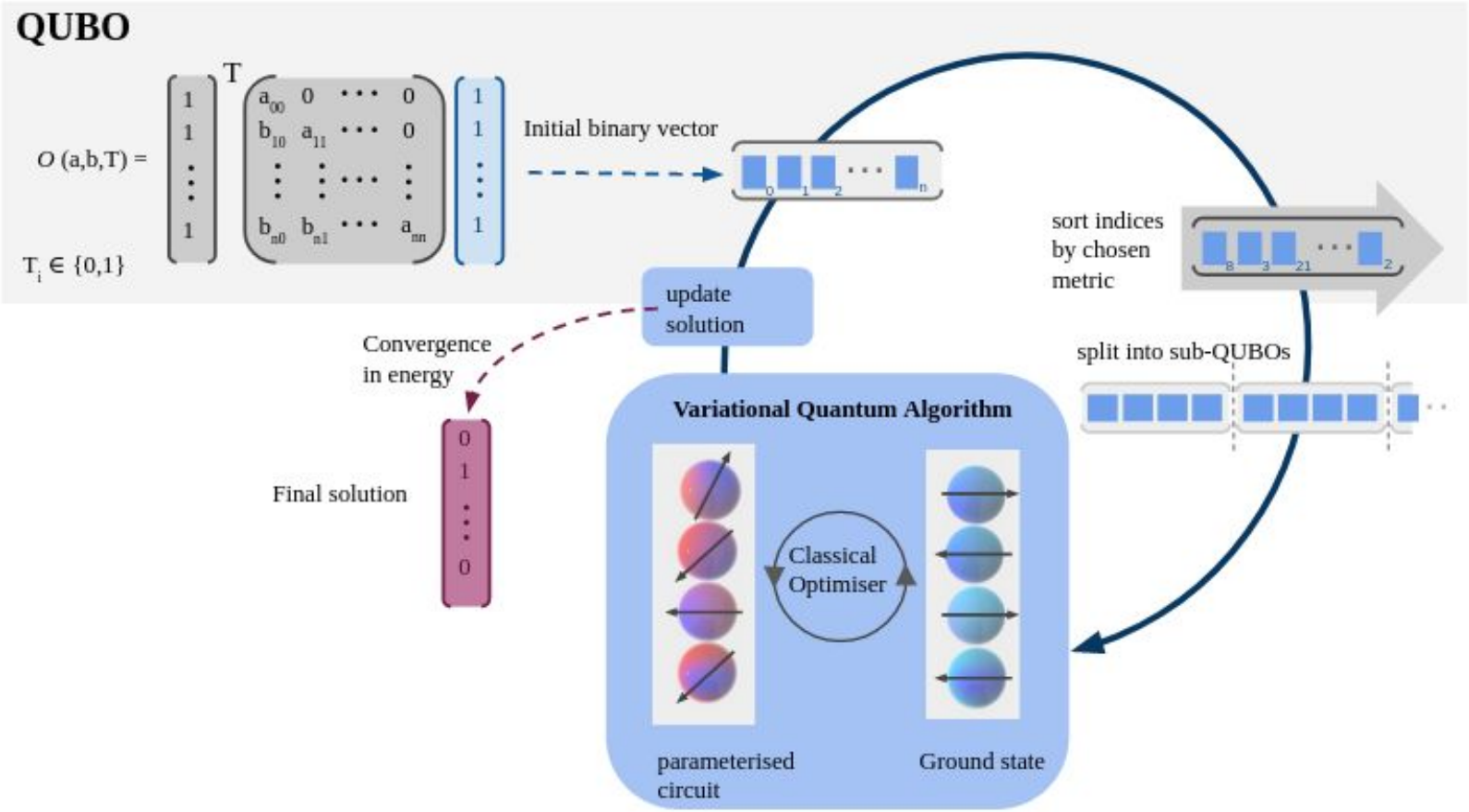
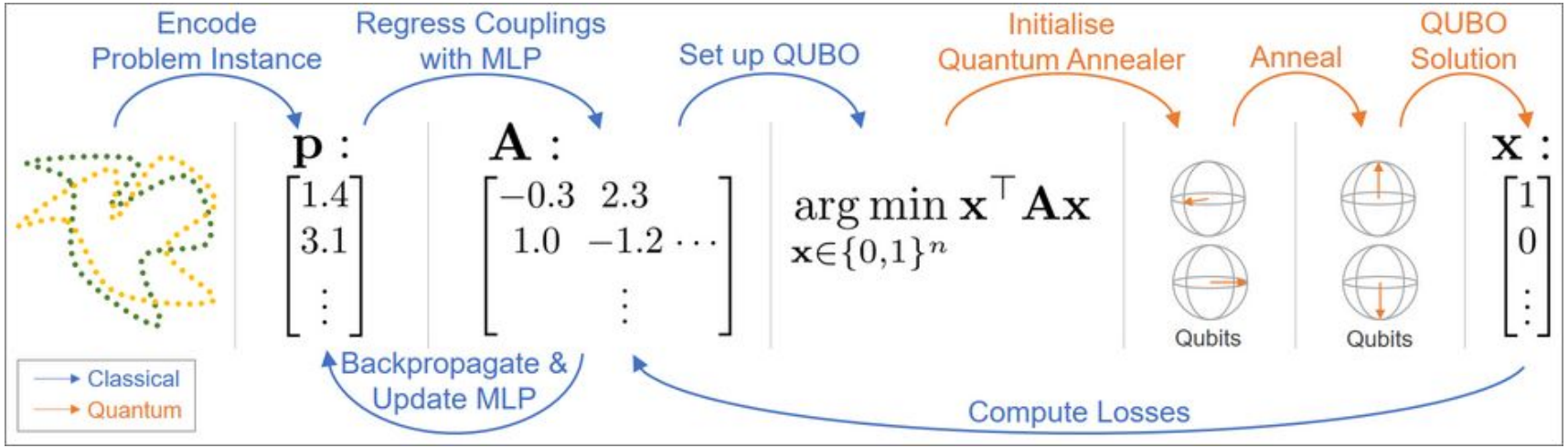
What is the quantum subgroup doing?



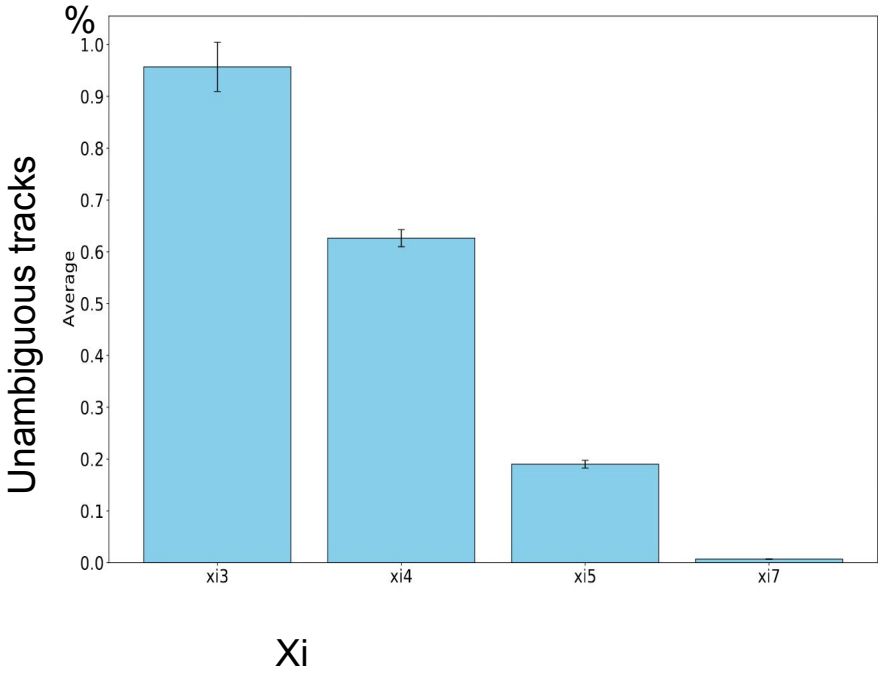

QUBO
O (a,b,T) =
T
T_i ∈ {0,1}
Initial binary vector
sort indices
by chosen
metric
update
solution
Convergence
in energy
split into sub-QUBOs
Final solution
Variational Quantum Algorithm
Classical
Optimiser
parameterised
circuit
Ground state

QUBO

- We have to define the qubo entries so that the minimisation of the QUBO leads to the correct triplet pairs
- The QUBO entries may also be learned using supervised learning:
  - We know what triplets are good/bad
  - Simulated annealing is a classical way to find the lowest energy state



Framework preparations



Max cluster size:

Xi3: 3
Xi4: 60
Xi5: 450 (possible for DWAVE! 5000q)

Implementation: what I have been working on