Bone Anisotropy Mapping

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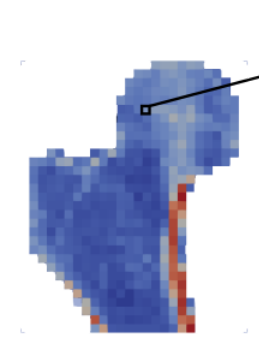
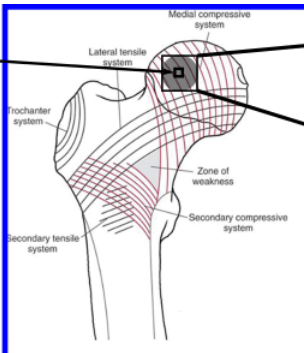
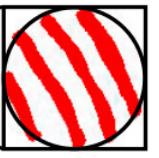
Algorithms

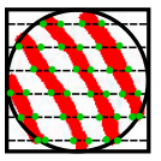
Algorithms

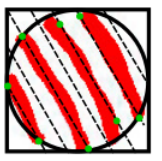


rotation matrix



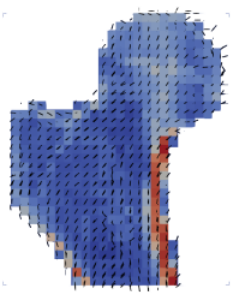


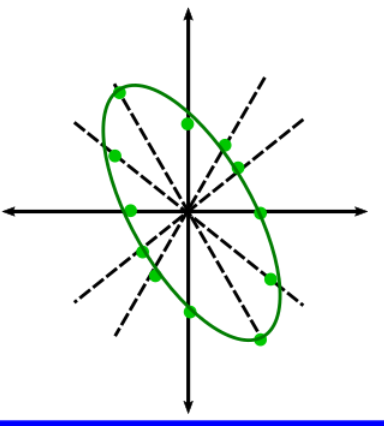




Low resolution image

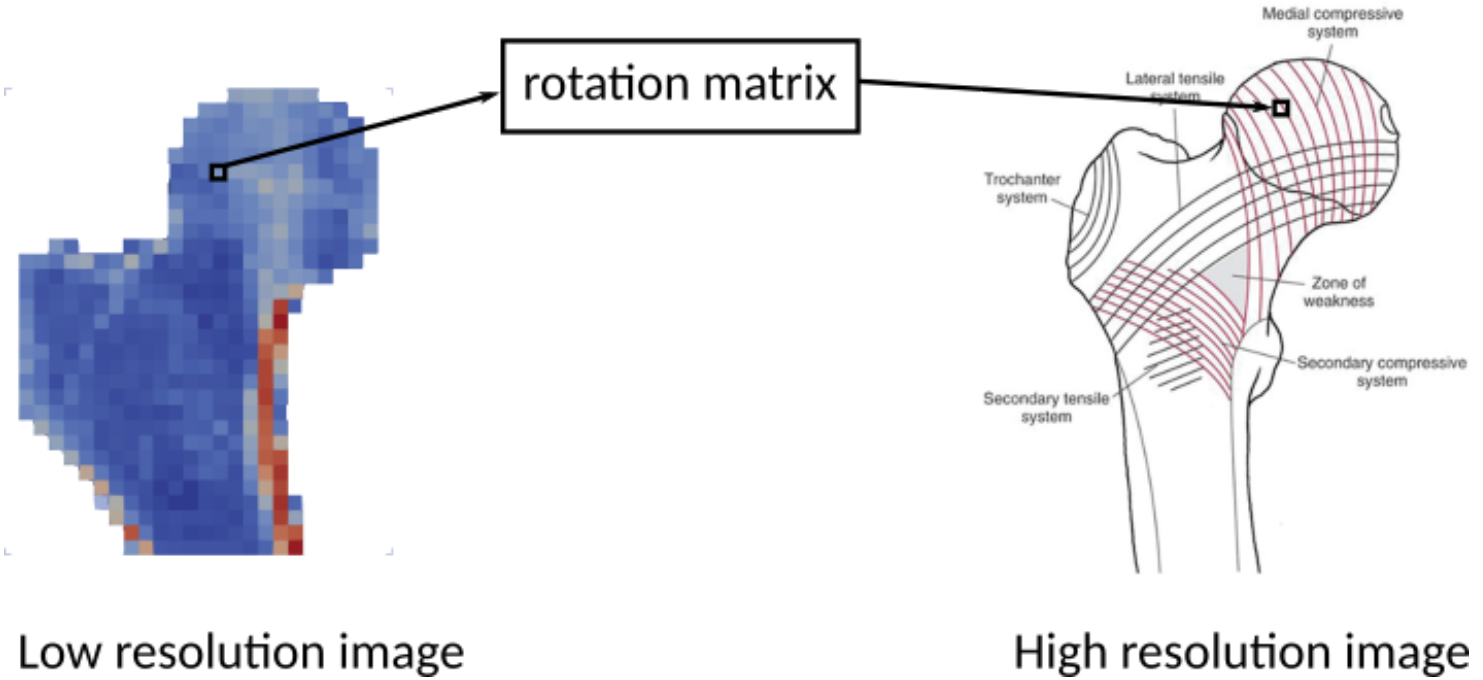
High resolution image





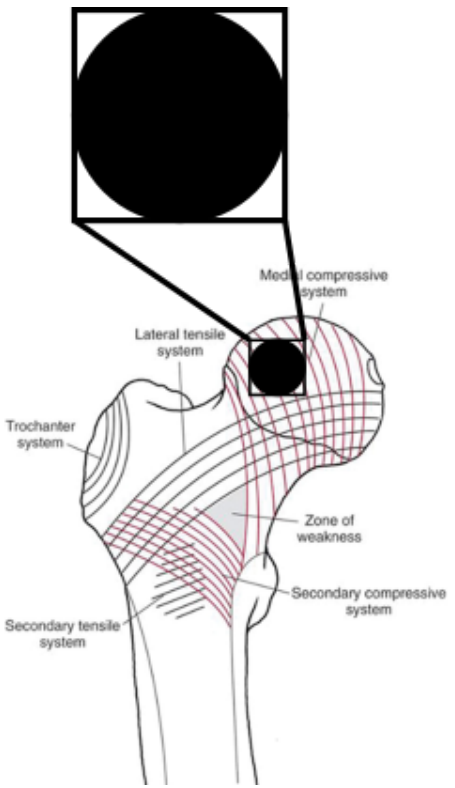
Algorithms

Coordinate mapping



Algorithms

Region extraction



Algorithms

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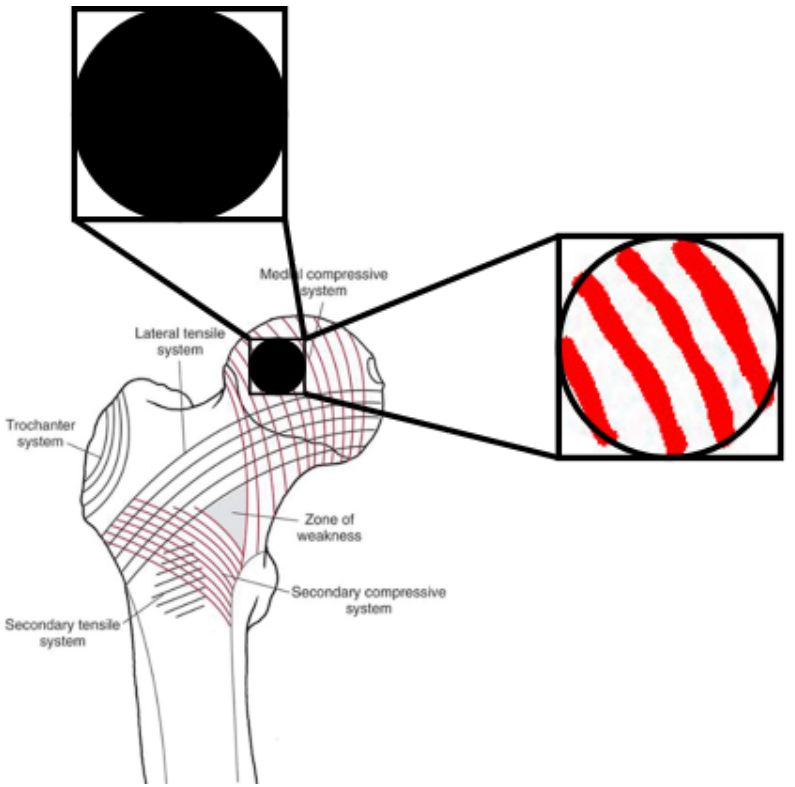
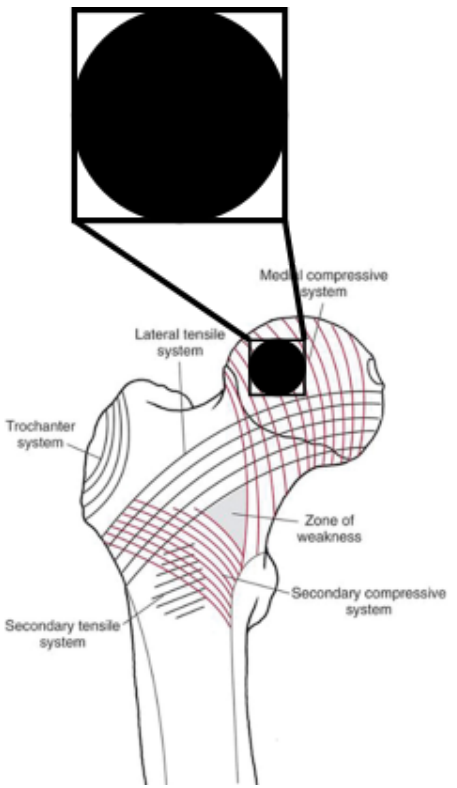
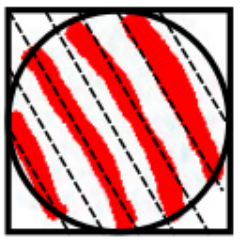


Algorithms

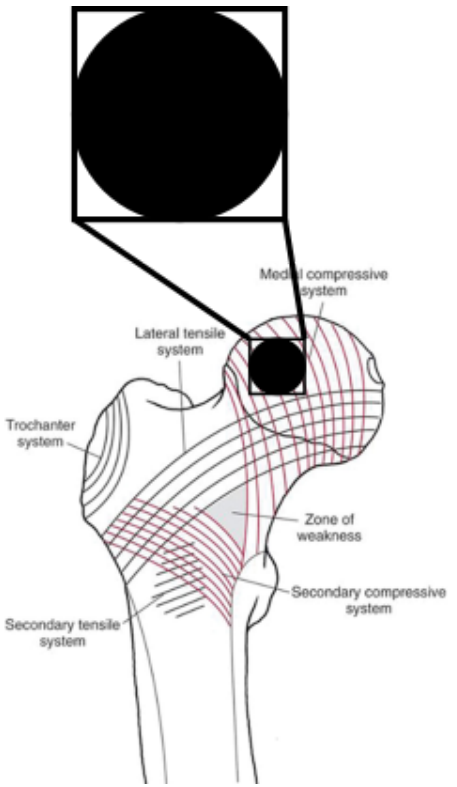
Mean intercept length (MIL) method

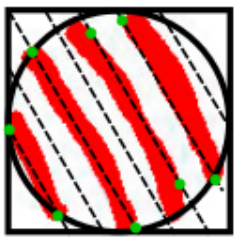


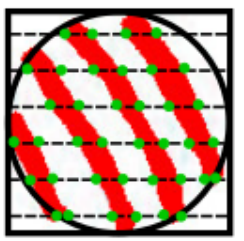


Algorithms

Mean intercept length (MIL) method

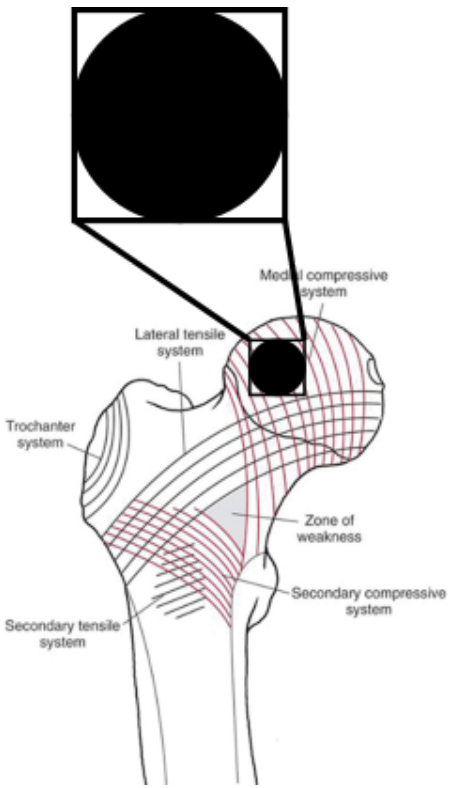


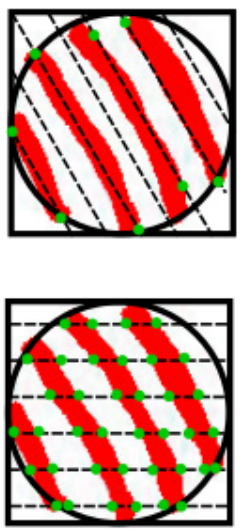


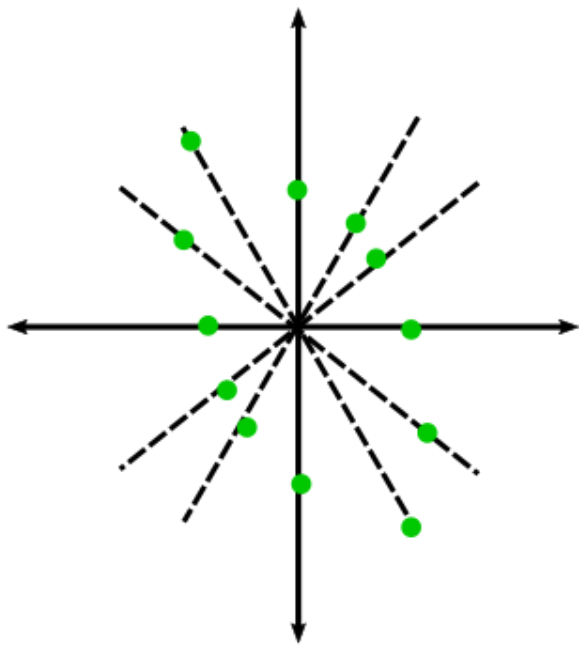


Algorithms

Ellipsoid fitting

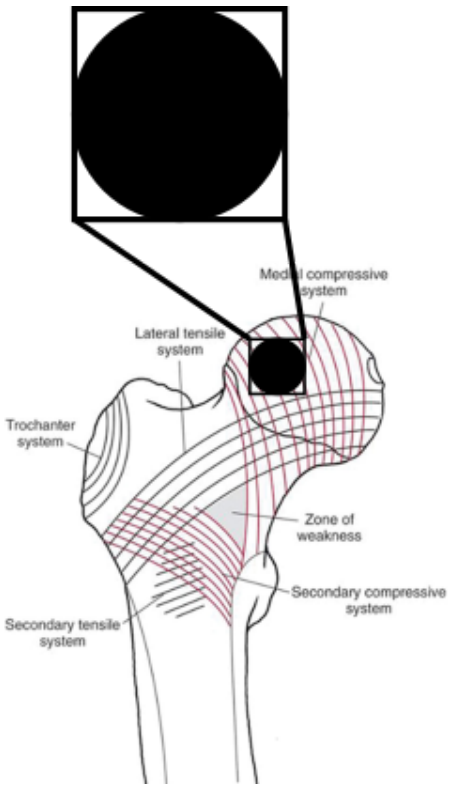


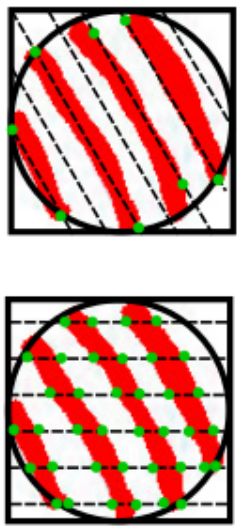


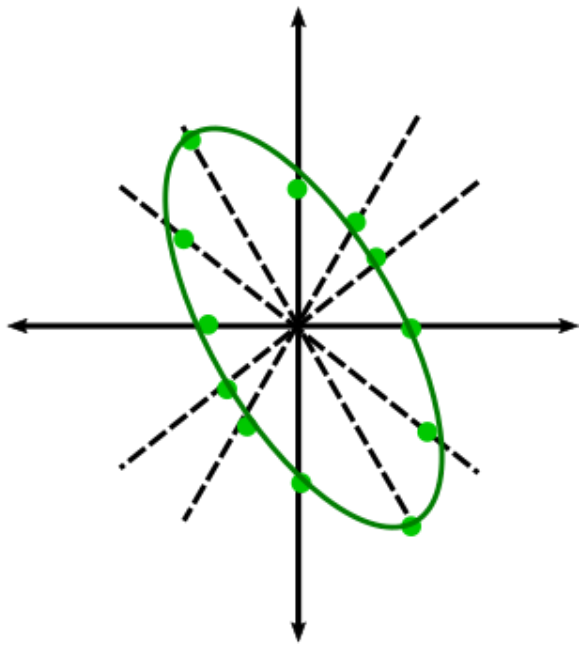


Algorithms

Ellipsoid fitting

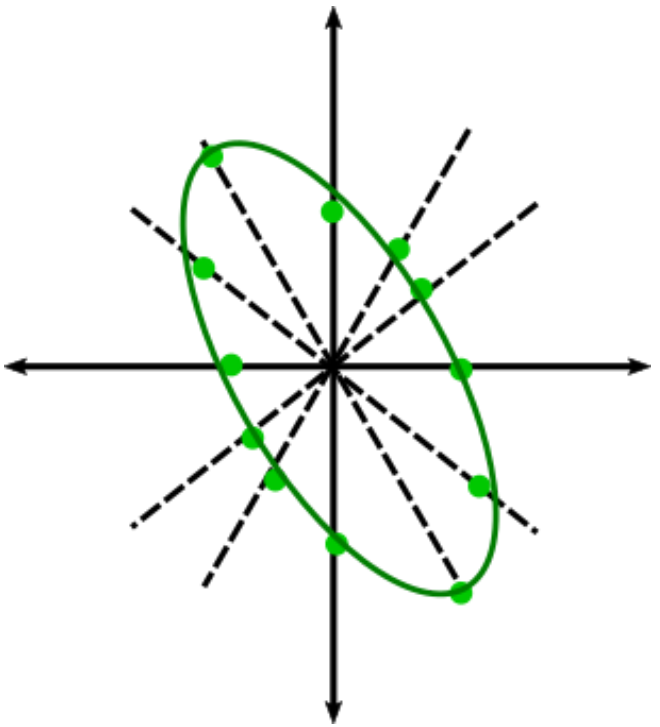






Algorithms

Ellipsoid fitting

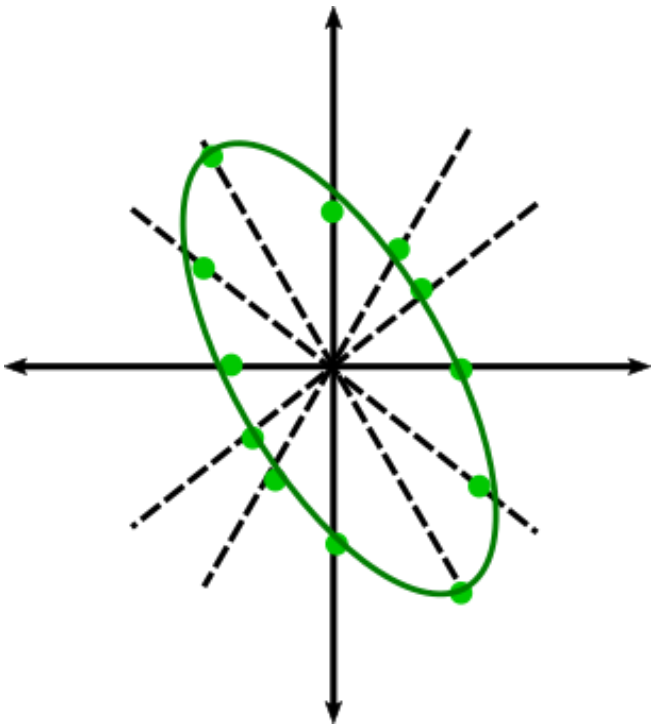


Fabric Tensor:

$$\begin{pmatrix} q_1 & q_2 & q_3 \\ q_4 & q_5 & q_6 \\ q_7 & q_8 & q_9 \end{pmatrix}$$

Algorithms

Eigendecomposition



Fabric Tensor:

$$\begin{pmatrix} q_1 & q_2 & q_3 \\ q_4 & q_5 & q_6 \\ q_7 & q_8 & q_9 \end{pmatrix}$$

Eigenvalues:

$$l_1, l_2, l_3$$

Eigenvectors:

$$\begin{pmatrix} m_1 & m_2 & m_3 \\ m_4 & m_5 & m_6 \\ m_7 & m_8 & m_9 \end{pmatrix}$$

Algorithms summary

Coordinate mapping

Region extraction

3D arrays

MIL calculation

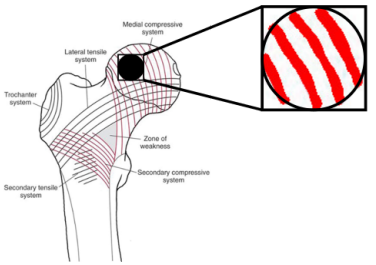
1D array

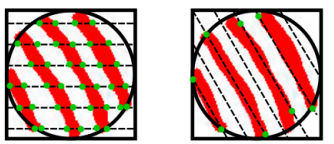
Ellipsoid fitting

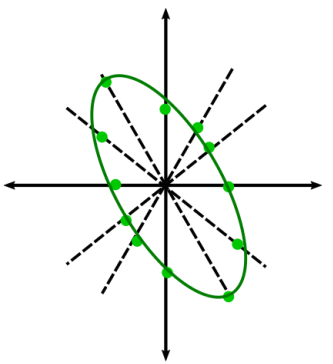
3x3 matrix

Eigendecomposition

3 eigenvalues
3 eigenvectors







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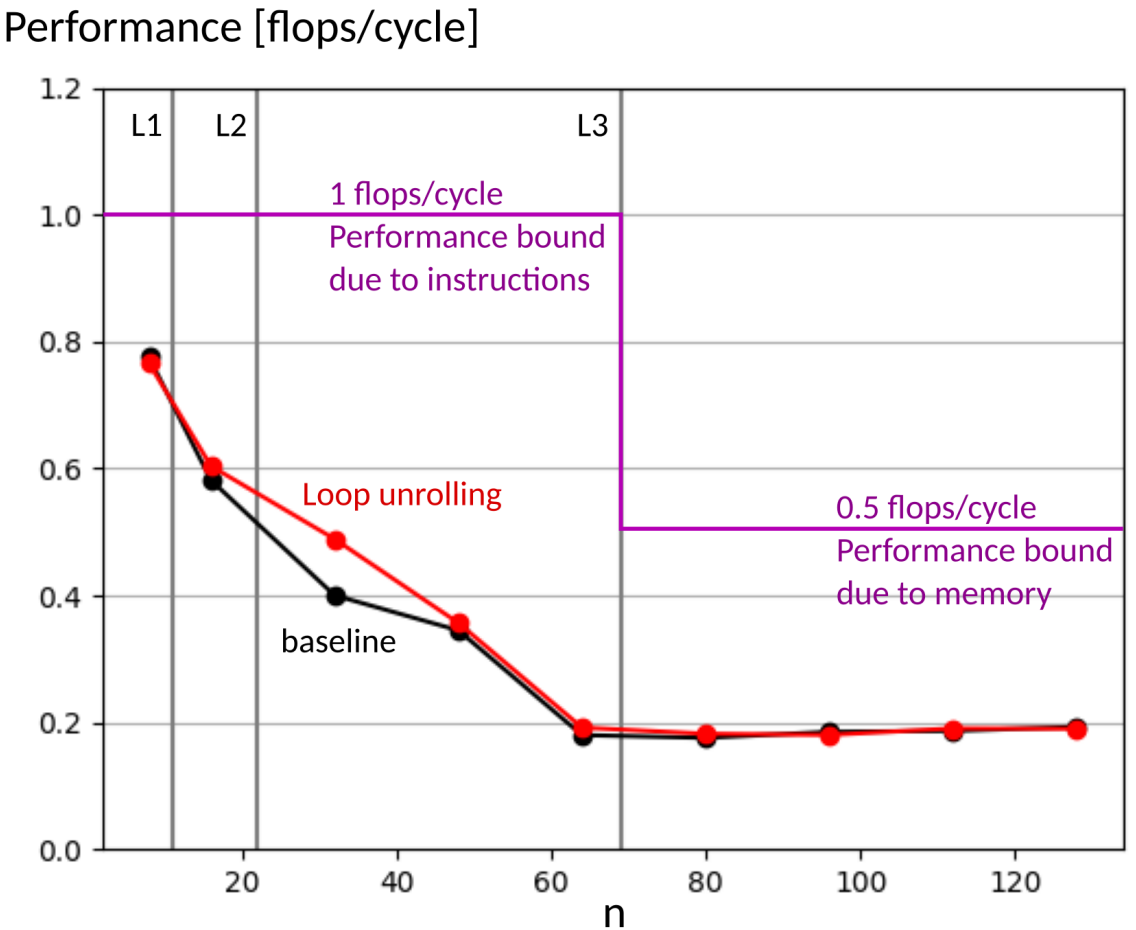

MIL calculation

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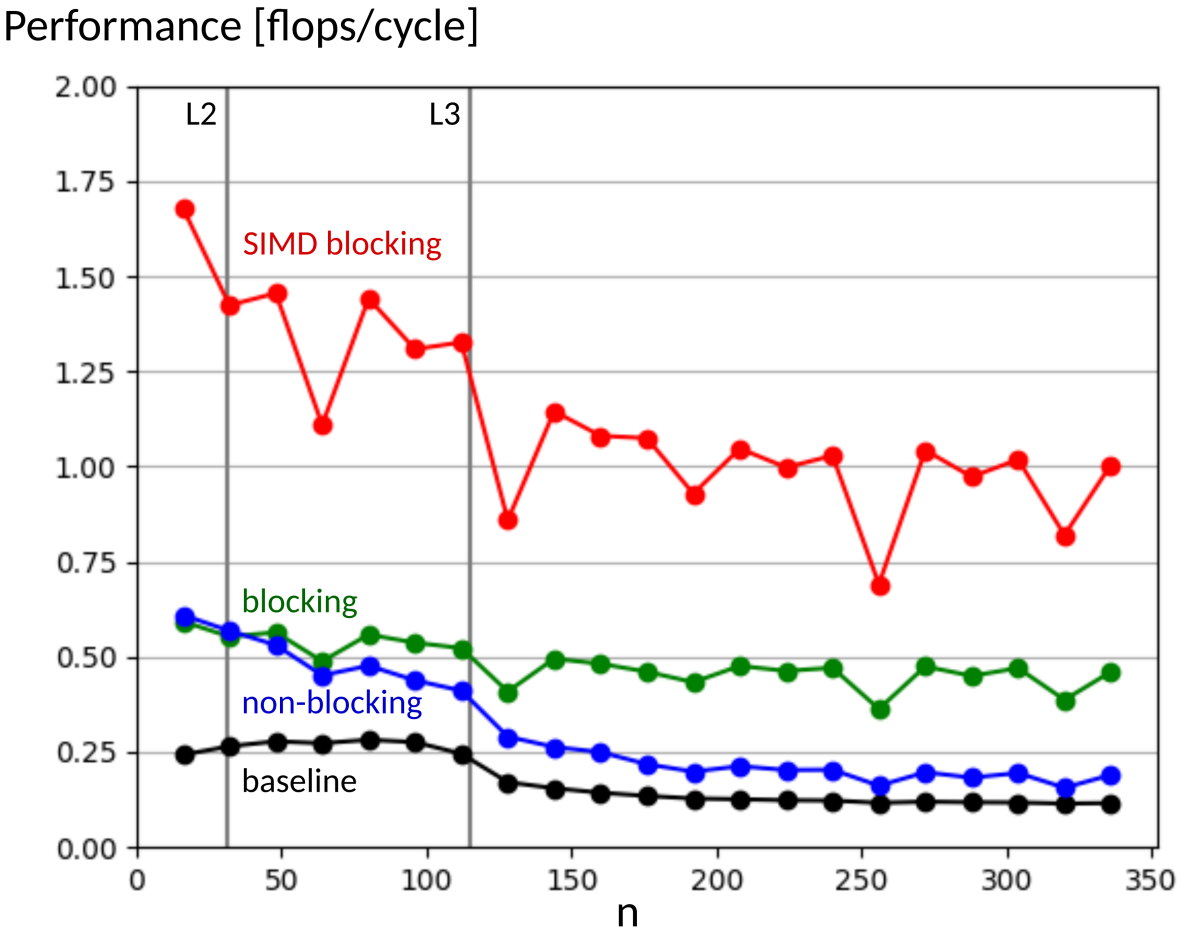
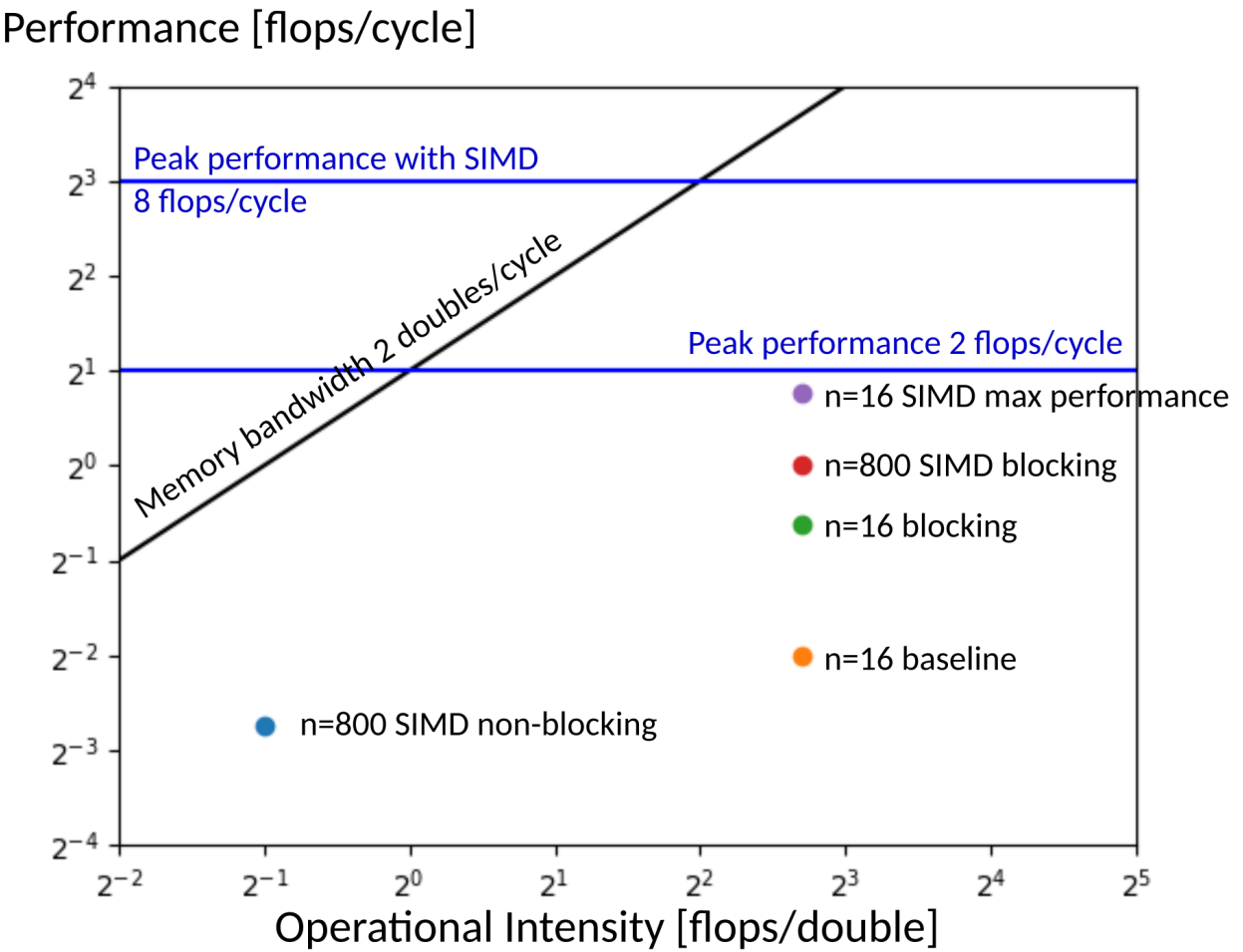


MIL calculation



Ellipsoid fitting

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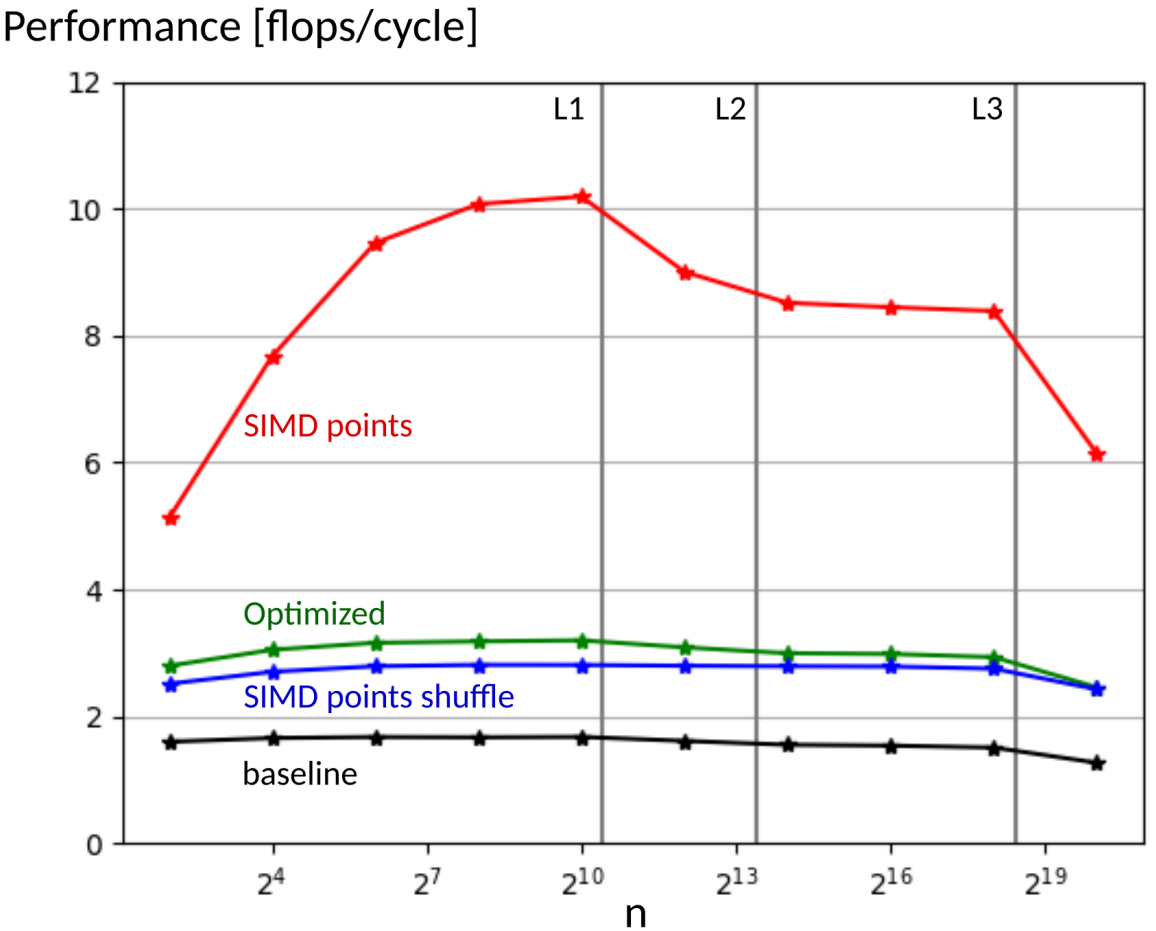

Overall performance and results

Overall performance

- Performance and roofline plots

Results