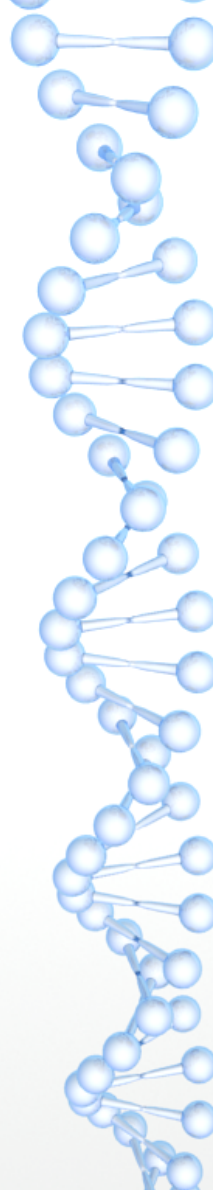




Računanje lokalnog poravnanja koristeći Smith-Watermanov algoritam implementiran na CUDA platformi

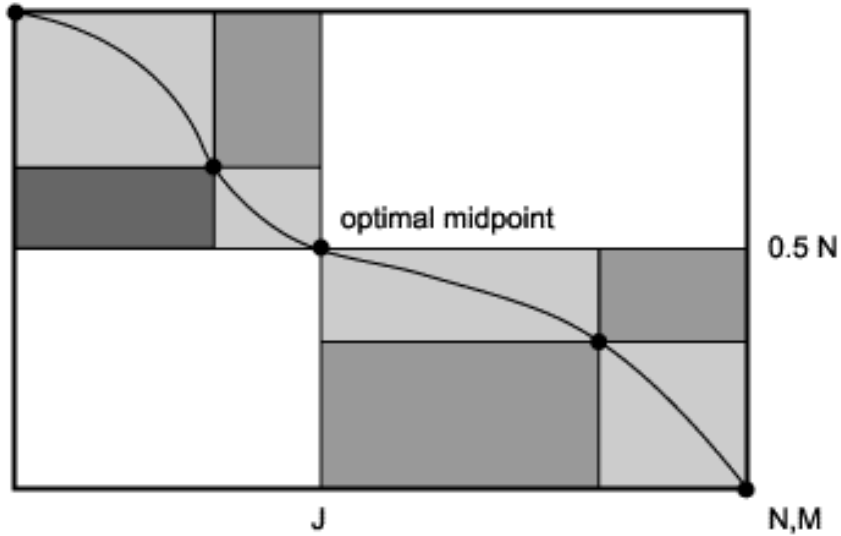
Halambek, Tunković, Bartol

Običan Smith-Waterman

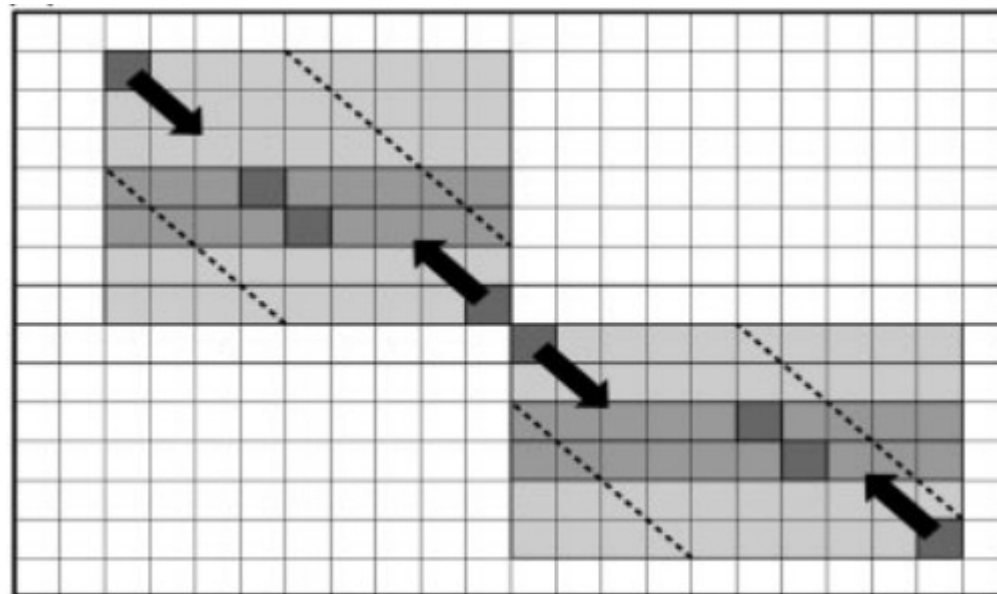


	G	G	C	T	C	A	A	T	C	A
A	0	0	0	0	0	0	2	2	0	0
C	0	0	2	0	2	0	1	1	2	0
C	0	0	2	1	2	1	0	0	3	1
T	0	0	0	4	2	1	0	2	1	2
A	0	0	0	2	3	4	3	1	1	3
A	0	0	0	0	1	5	6	4	2	3
G	0	2	2	0	0	3	4	5	3	1
G	0	2	4	2	0	1	2	3	4	2

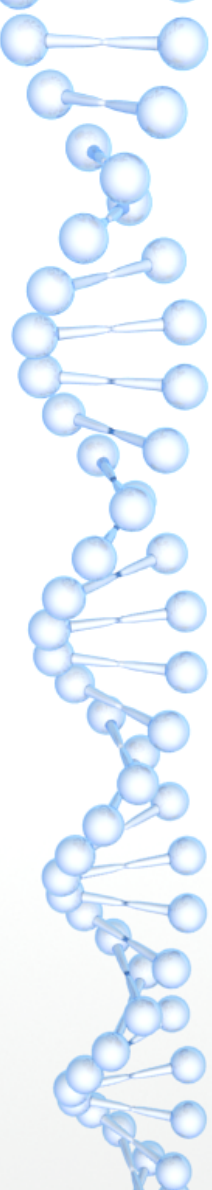
Smanjenje memorijske složenosti #1



Smanjenje memorijske složenosti #2



Smanjenje vremenske složenosti - CUDA



d ₁	d ₂	d ₃	d ₄	d ₅	d ₆	↘	d ₈	d ₉
d ₂	d ₃	d ₄	d ₅	d ₆	↘	d ₈	d ₉	d ₁₀
d ₃	d ₄	d ₅	d ₆	↘	d ₈	d ₉	d ₁₀	d ₁₁
d ₄	d ₅	d ₆	↘	d ₈	d ₉	d ₁₀	d ₁₁	d ₁₂
d ₅	d ₆	↘	d ₈	d ₉	d ₁₀	d ₁₁	d ₁₂	d ₁₃



Rezultati

Tablica 4.1. Trajanje izvođenja algoritma u sekundama

Duljina sekvence	SW#	SW
100	1.06	1.22
1000	1.35	1.22
10000	1.70	1.46
100000	1.59	2.77
1000000	12.87	137.31

Tablica 4.2. Iznosi poravnanja (alignment score)

Duljina sekvence	SW#	SW
100	7	7
1000	10	10
10000	13	13
100000	17	17
1000000	19	19