

BAB VI

PENUTUP

VI.1. Kesimpulan

Dari pembahasan Komputasi Paralel untuk Segmentasi Citra Digital dengan *Particle Swarm Optimization* (PSO) di atas, dapat ditarik beberapa kesimpulan, yaitu:

1. Perangkat lunak untuk segmentasi citra digital dengan PSO yang berjalan pada CPU dan GPU dengan CUDA telah berhasil dibangun.
2. Secara umum, segmentasi citra digital dengan PSO yang berjalan pada GPU berjalan lebih cepat dibandingkan dengan segmentasi citra digital dengan PSO yang berjalan pada CPU, dengan percepatan maksimal hampir dua kali lipat.
3. Kualitas hasil *clustering* dari algoritma PSO yang berjalan pada GPU sebanding dengan kualitas hasil *clustering* dari algoritma PSO yang berjalan pada CPU.
4. Metode paralel PSO yang berjalan pada *device* sepenuhnya lebih cepat dibandingkan dengan metode paralel PSO yang berjalan pada *device* maupun *host*.

VI.2. Saran

Beberapa saran dari penulis untuk penelitian bagi segmentasi citra digital dengan paralel PSO:

1. CUDA sebagai *library* pemrograman paralel yang digunakan pada penelitian ini dapat digantikan dengan OpenCL agar program bisa berjalan secara *cross-platform*, yakni dapat dijalankan pada GPU dari AMD, Intel, maupun NVIDIA.
2. Program ini dapat dikembangkan lagi dengan menggunakan algoritma-algoritma lain untuk melakukan segmentasi citra digital, misalnya *ant colony optimization* atau *genetic algorithm*.

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