

## Implementation of evolutionary optimization techniques in tuning PID parameters for tremor patient active assistive writing device

### Abstract:

Genetic Algorithm (GA) and Particle Swarm Optimization (PSO) are methods of the Evolutionary Optimization techniques and autonomously tuning method used in this study to tune the parameters of the Proportional-integral-derivative (PID) controller. PID controllers need to be tuned appropriately to establish the good performance of the Active Assistive Writing Device (AAWD). This AAWD device is used to help patients who face difficulties due to hand trembling while writing. The actual hand tremor data while writing was measured by attaching an accelerometer to the device. Based on the simulation results, it has been found that applying PID controller and GA optimization techniques to the assistive device has an enormous potential in helping tremor patients improve their quality of handwriting.