研究方向(1)：人工智能与机器人技术

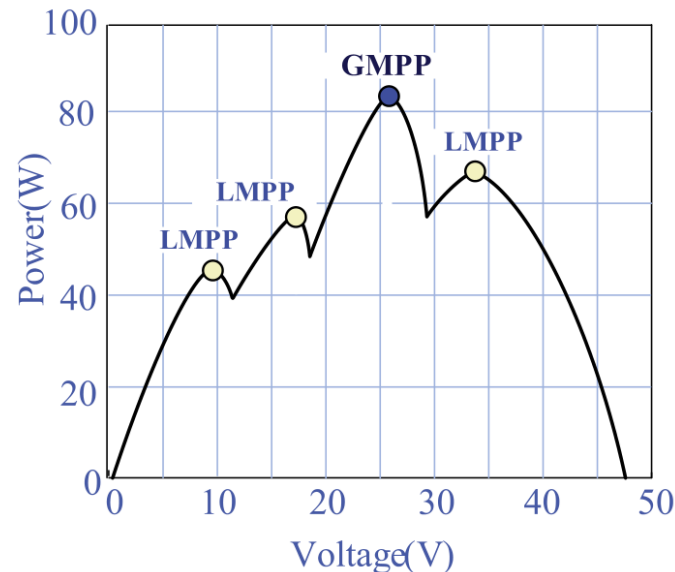## 基于人工智能优化的新能源最大功率跟踪

张孝顺

基于人工智能优化的新能源最大功率跟踪

1、阴影环境下的光伏最大功率点跟踪

➤ 在阴影环境下光伏输出功率曲线存在多个极值，传统跟踪算法难以获得全局最优点。

➤ 使用性能高效的启发式算法来逼近全局最优大功率点，提升光伏发电能源转换效率。

[1] **Xiaoshun Zhang**, Shengnan Li, Tingyi He, et al. Memetic reinforcement learning based maximum power point tracking design of PV systems under partial shading condition. *Energy*, 2019, 174: 1079-1090. (IF=5.537，中科院二区)

[2] Bo Yang, Tao Yu, **Xiaoshun Zhang***, et al. Dynamic leader based collective intelligence for maximum power point tracking of PV systems affected by partial shading condition. *Energy Conversion and Management*, 2019, 179: 286-303. (IF=7.181，中科院一区，**ESI高被引**)
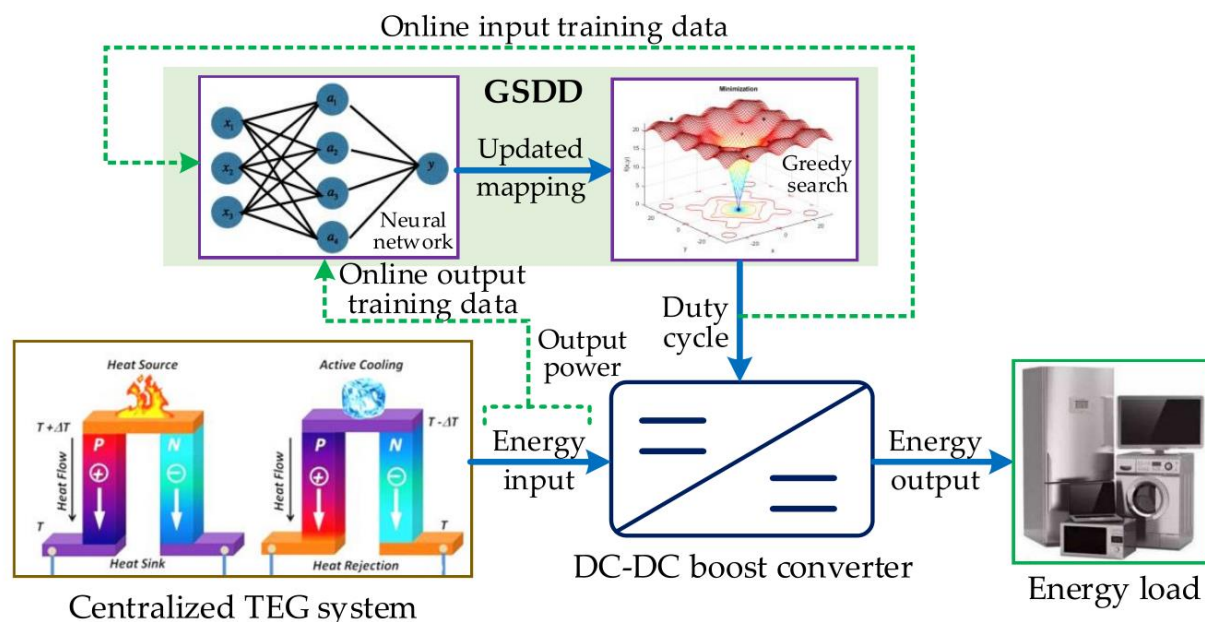
[3] Bo Yang, Tao Yu, **Xiaoshun Zhang***, et al. Novel bio-inspired memetic salp swarm algorithm and application to MPPT for PV systems considering partial shading condition. *Journal of Cleaner Production*, 2019, 215: 1203-1222. (IF=6.395，中科院一区，**ESI高被引**)
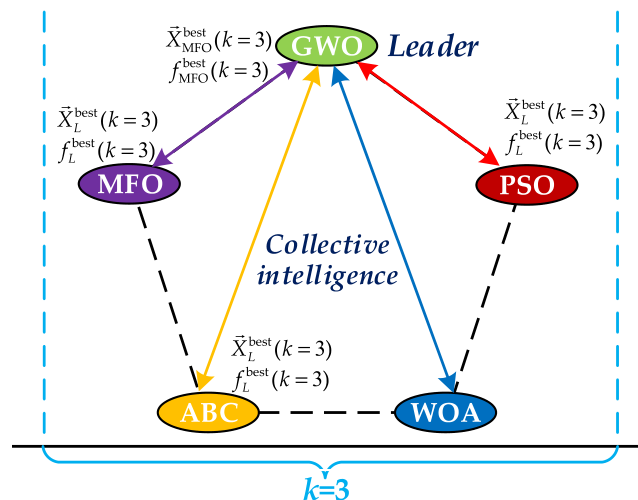
2、温度非均匀环境下的温差发电最大功率点跟踪

➤ 在温度非均匀环境下温差发电输出功率曲线同样存在多个极值，传统跟踪算法难以获得全局最优点。

➤ 使用性能高效的启发式算法来逼近全局最优大功率点，提升温差发电能源转换效率。

[1] Bo Yang, Junting Wang, **Xiaoshun Zhang***, et al. MPPT design of centralized thermoelectric generation system using adaptive compass search under non-uniform temperature distribution condition. *Energy Conversion and Management*, 2019, 199, 111991. (IF=7.181, 中科院一区)

[2] Bo Yang, Junting Wang, **Xiaoshun Zhang***, et al. Fast atom search optimization based MPPT design of centralized thermoelectric generation system under heterogeneous temperature difference. *Journal of Cleaner Production*, 2019, In Press (IF=6.395, 中科院一区)

广东省数字信号与图像处理技术重点实验室