Curriculum Vitae

Ke Chen, Ph.D. candidate

Contact Information

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Basic Information

Date of Birth: 10/13/1990
Citizenship: Chinese

Education

2017-	Ph.D. in Pattern Recognition and Intelligent Systems	Shandong University
2014-2017	M.S. in Control Engineering	Yanshan University
2010-2014	B.S. in Automation	Weifang University

Selected Honors and Awards

- National First-Class academic Scholarships (top 10%, awarded by Ministry of Education of the PRC) 2014, 2015, 2016, 2017
- Outstanding Graduate of Yanshan University 2017
- Be recommended for admission to be a postgraduate without entrance examination (admission interview ranked 1st) 2016
- Excellent Student Award of Yanshan University 2015, 2016
- Outstanding Graduate of Weifang City 2014

Professional Services

- **Journal paper reviewer**
  - Soft Computing (SCI-indexed Journal) 2017
  - Journal of Chinese Society of Power Engineering 2016
- **Conference paper reviewer**
  - Chinese Automation Congress & Intelligent Manufacturing International Conference (CAC & CIMIC 2017)

Invited Seminars and Talks

2017.10	Application of Evolutionary Computation	Shandong University

Research Interests

- Evolutionary computation (Particle swarm optimization, Krill herd algorithm, etc)
- Machine learning (Convolution neural network, Fast learning network, Support vector machine, etc)
- Robotics (Wheeled service robot)
- Modeling of complex industrial systems (Steam turbine, Boiler)

Publications

[1] **Chen K**, Zhou F, Yin L, et al. A hybrid particle swarm optimizer with sine cosine acceleration coefficients. *Information Sciences*, 2018, 422: 218-241. (**SCI**) https://doi.org/10.1016/j.ins.2017.09.015

[2] **Chen K**, Zhou F, Liu A. Chaotic dynamic weight particle swarm optimization for N numerical function optimization. *Knowledge-Based Systems*, 2018, 139: 23-40. (**SCI**) https://doi.org/10.1016/j.knosys.2017.10.011

[3] **Chen K**, Zhou F, Wang Y, et al. Combination and Selection of Particle Swarm Optimizer for Solving Numerical Optimization Problems. *Applied Soft Computing*, 2017. (Under Review, **SCI**)

[4] Niu P, **Chen K***, Ma Y, et al. Model turbine heat rate by fast learning network with tuning based on ameliorated krill herd algorithm. *Knowledge-Based Systems*, 2017, 118: 80-92. (Corresponding Author, **SCI**) https://doi.org/10.1016/j.knosys.2016.11.011

[5] Niu P, **Chen K**, Ma Y, et al. Modelling of Turbine Heat Rate Based on Krill Herd Algorithm and Its Application. *Journal of Chinese Society of Power Engineering*, 2016, 36(10):781-787. (In Chinese)

[6] Niu P, **Chen K***, Liu A, et al. Study on the Optimal Initial Pressure of a Steam Turbine Unit Based on Krill Herd Algorithm. *Journal of Chinese Society of Power Engineering*, 2017, 37(8):615-621. (Corresponding Author, In Chinese)

[7] Ma Y, Niu P, **Chen K**, et al. Optimize NOx emissions model of boiler based on chaos group teaching-learning-based optimization algorithm. *Acta Metrologica Sinica*, 2017. (Accepted, In Chinese)

Participate in Research Project

[1] 2015.01- :Research on biologically-inspired algorithm and its application in boiler combustion optimization, supported by the National Natural Science Foundation of China (No.61403331)

- Project Description:
  With the development of the economy and growing worldwide attention to environmental protection, how to reduce pollutant emissions without reducing boiler efficiency is an important and urgent problem to be solved for most power plants. Therefore, this project emphasizes on the research of combustion optimization using a precise model.
- Responsibilities:
  - ✓ Study on the krill herd algorithm and support vector machine
  - ✓ Build a precise NOx emission model and a boiler efficiency model of a 330MW circulating fluidized bed boiler (CFBB)
  - ✓ Study on machine learning and other intelligent methods

[2] 2016.01- : Research and application of the artificial bee colony and quantum fast learning network for predicting NOx emissions and boiler efficiency from a Coal-Fired Boiler, supported by the National Natural Science Foundation of China (No.61573306)

- Project Description:
  In this project, some ameliorated naturally-inspired algorithms will be researched and proposed firstly. Secondly, a high-precision prediction model will be designed and

developed. Thirdly, a precise NOx emission and efficiency model of boiler will be established.

- Responsibilities:
  - ✓ Write the proposals for this project
  - ✓ Study on the krill herd algorithm and fast learning network
  - ✓ Communicate with other members of the group and promoting the project
  - ✓ Study on other modeling methods

[3] 2014.01- : Research on autonomous human activity learning method supported by intelligent space, supported by the National Natural Science Foundation of China (No.61375084)

- Project Description:
  Intelligence is one of the key elements for robots to complete their service tasks and robots could provide better services if they can finish their tasks in a way which human beings get used to. Therefore this project emphasizes on the research of autonomous human activity learning method supported by intelligent space.
- Responsibilities:
  - ✓ Study on machine learning and other intelligent methods

[4] 2017.01- : Research on self-diagnosing method of service robots supported by cloud computing, supported by the National Natural Science Foundation of China (No.61773242)

- Project Description:
  In this project, a kind of cloud-based service robot will be designed and developed firstly. Secondly, the running data of the designed robot will be uploaded to the cloud side. Thirdly, with the help of the powerful computing and storage capacity of the cloud, data driven health assessment and fault prognosis of the robot will be accomplished on the cloud side. Besides, a simulation software system will be developed based on the integration of MATLAB and Webot.
- Responsibilities:
  - ✓ Write the proposals for this project
  - ✓ Study on the evolutionary computation technique and use it to reduce irrelevant and redundant data features
  - ✓ Parameter optimization using particle swarm optimization
  - ✓ Communicate with other members of the group and promoting the project
  - ✓ Report the process of the project to my supervisor

Technical Skills

- Operating systems: Microsoft Windows, Linux
- Specialized Software: MATLAB, SIMULINK, Altium Designer, etc.
- Programming: MATLAB, Python, C
- Office productivity: LATEX, Microsoft Office