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师资队伍

电气工程系

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电子信息工程系

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现代电工电子技术中心

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电气电子国家级实验教学中心

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电气与自动化实验中心

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Date: 2020年08月01日

个人资料:

姓名: 董娜

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学科专业: 控制科学与工程/控制理论与控制工程学科

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主要经历:

- (1) 2014.07至今 天津大学电气自动化与信息工程学院, 控制理论与控制工程专业, 副教授, 硕士生导师
- (2) 2011.07-2014.06 天津大学电气自动化与信息工程学院, 控制理论与控制工程专业, 讲师
- (3) 2010/02 - 2011/02 伊利诺大学芝加哥分校(美), 电气与计算机工程专业, 联合培养博士
- (4) 2009/04 - 2010/01 香港理工大学, 工业系统工程系, 研究助理
- (5) 2006/09 - 2011/06 南开大学, 控制理论与控制工程专业, 硕博连读

主要研究方向:

- (1) 非线性智能控制、数据驱动控制算法研究及其应用
- (2) 建筑节能: 压缩式制冷系统及太阳能溴化锂机组的节能、优化控制
- (3) 机器人控制、自主导航、实时定位与建图及路径规划
- (4) 脑机融合控制问题研究及其在脑控车、脑控外骨骼机械臂等系统中的应用
- (5) 机器学习、深度学习、智能优化等方法研究及其在医学影像、气象等数据分析中的应用

主要科研项目:

- (1) 2018.01-2021.12 国家自然科学基金项目“太阳能溴化锂制冷系统的优化、建模及数据驱动控制”, 项目负责人
- (2) 2020.04-2020.12 广东电科院横向课题“表计识别及云台二次对准模块软件调优及测试”, 项目负责人
- (3) 2018.09-2019.01 广东电科院横向课题“户外复杂环境下云台精确二次对准及表计识别算法优化”, 项目负责人
- (4) 2015.01-2017.12 国家自然科学基金项目“复杂未建模系统的基于随机逼近的数据驱动控制研究”, 项目负责人
- (5) 2013.04-2016.03 天津市自然科学基金“基于同步扰动随机近似算法的数据驱动控制研究”, 项目负责人
- (6) 2013.01-2014.12 天津大学自主创新基金项目“基于随机逼近的数据驱动控制研究及其在小型无人机轨迹跟踪控制中的应用”, 项目负责人
- (7) 2014.01-2018.12 国家自然科学基金重点项目“非线性优化问题与智能电网的关键技术: 理论、方法和应用”, 参与者
- (8) 2015.01-2018.12 国家自然科学基金项目“基于复杂网络多元信息融合的油井两相流流型演化机制研究”, 参与者

代表性论著、学术著作:

学术论文:

- (1) Dong Na*, Zhao Li, Wu Aiguo. Cervical Cell Recognition Based on AGVF-Snake Algorithm, International Journal of Computer Assisted Radiology and Surgery. 2019.14(11): 2031-2041 (SCI)
- (2) Dong Na, Chang Jian-Fang, Wu Ai-Guo, Gao Zhong-Ke. A novel convolutional neural network framework based solar irradiance prediction method. International Journal of Electrical Power and Energy Systems. Vol. 114, January 2020, 105411. (SCI)
- (3) Dong Na*, Lv Wen-Jin, Zhu Shuo, Li Dong-Hui. Anti-noise model-free adaptive control and its application in the circulating fluidized bed boiler, Proceedings of the Institution of Mechanical Engineers Part I Journal of Systems and Control Engineering, 2020 (4):1884-2022. (SCI)
- (4) Dong Na, Zhao Li, Chun Ho Wu, Chang Jian-Fang. Inception v3 based cervical cell classification combined with artificially extracted features, Applied Soft Computing, 2020, 93:106311. (SCI)
- (5) Jianfang Chang, Na Dong*, Donghui Li, Minghui Qin, Triplet loss based metric learning for closed loop detection in VSLAM system, Expert Systems with Applications, 2021.115646. (SCI)

- (6) **Dong Na**, Mengdie Zhai, Chang Jian-Fang, Chun Ho Wu. A self-adaptive approach for white blood cell classification towards point-of-care testing. *Applied Soft Computing*, 2021, 111:107709. (SCI)
- (7) Chang Jian-Fang, **Dong Na***, Ip Wai Hung, Yung Kai Leung. An ensemble learning model based on Bayesian model combination for solar energy prediction. *Journal of Renewable and Sustainable Energy* 11, 043702 (2019). (SCI)
- (8) Xinyu Liu, Donghui Li, **Na Dong***, K.L. Yung, W.H. Ip. Non-cooperative Target Detection of Spacecraft Objects based on Artificial Bee Colony Algorithm. *IEEE Intelligent System*, 2020. DOI 10.1109/MIS.2019.2929501. (SCI)
- (9) Gao Zhong-Ke, Li Yan-Li, Yang Yu-Xuan, **Dong Na***, Yang Xiong and Celso Grebogi. A Coincidence Filtering-based Approach for CNNs in EEG-based Recognition, *IEEE Transactions on Industrial Informatics*, 2020, 16 (11):7159-7167. (SCI)
- (10) **Na Dong***, Xue-shuo Han, Zhong-Ke Gao, Zeng-Qiang Chen, Ai-guo Wu, SPSA based data driven control strategy for load frequency control of power systems, *IET Generation, Transmission & Distribution*, 2018.12(2): 414-422. (SCI)
- (11) **Na Dong***, Chun-Ho Wu, Zhong-Ke Gao, Zeng-Qiang Chen, Wai-Hung Ip, Data-driven control based on simultaneous perturbation stochastic approximation with adaptive weighted gradient estimation, *IET Control Theory & Applications*, 2016.1.19, 10(2): 201-209. (SCI)
- (12) Xing Fang, Ai-guo Wu, Yujia Shang, **Na Dong***, A novel sliding mode controller for small-scale unmanned helicopters with mismatched disturbance, *Nonlinear Dynamics*, 2016.1.01, 83(1-2): 1053-1068. (SCI)
- (13) **Na Dong***, Chun-Ho Wu, Wai-Hung Ip, Zeng-Qiang Chen and Ai-Guo Wu. Species based Chaotic Hybrid Optimizing Algorithm and Its Application in Image Detection. *Applied Artificial Intelligence*, 28(7):647-674, 2014. (SCI)
- (14) **Na Dong***, Ai-Guo Wu and Zeng-Qiang Chen. Discrete non-linear adaptive data driven control based upon simultaneous perturbation stochastic approximation. *Nonlinear Dynamics*, 72(4), pp. 883-894, 2013. (SCI)
- (15) **Na Dong***, Zeng-Qiang Chen. A novel data based control method based upon neural network and simultaneous perturbation stochastic approximation. *Nonlinear Dynamics*, 67(2), pp. 957~963, 2012. (SCI)
- (16) **Na Dong***, Zeng-Qiang Chen. A novel Approximate Dynamic Programming based model-free nonlinear predictive control. *Nonlinear Dynamics*, 69(1-2), pp. 89~97, 2012. (SCI)
- (17) **Na Dong***, Chun-Ho Wu, Wai-Hung Ip, Zeng-Qiang Chen and Kai-Leung Yung. Chaotic species based particle swarm optimization algorithms and its application in PCB components detection. *Expert Systems with Applications*, 39(16), pp. 12501~12511, 2012. (SCI)
- (18) **Na Dong***, Chun-Ho Wu, Wai-Hung Ip, Zeng-Qiang Chen, Ching-Yuen Chan and Kai-Leung Yung. An Improved Species based Genetic Algorithm and Its Application in Multiple Template Matching for Embroidered Pattern Inspection. *Expert Systems with Applications*, 38(12), pp. 15172~15182, 2011. (SCI)
- (19) **Na Dong***, Chun-Ho Wu, Wai-Hung Ip, Zeng-Qiang Chen, Ching-Yuen Chan and Kai-Leung Yung. Opposition-based Chaotic GA/PSO Hybrid Algorithm and Its Application in Circle Detection. *Computers and Mathematics with Applications*, 64(6), pp. 1886~1902, 2012. (SCI)
- (20) 方星, 吴爱国, 董娜*, 非匹配扰动干扰下的无人直升机轨迹跟踪控制, 《控制理论与应用》, 32(10): 1325~1334, 2015. (EI)
- (21) 董娜*, 吴爱国, 陈增强. 改进的非线性离散系统自适应数据驱动控制. 《控制理论与应用》, 30(10), pp. 1309~1314, 2013. (EI)
- (22) **Na Dong***, Derong Liu and Zengqiang Chen. Data based predictive control using neural networks and stochastic approximation. *International Conference on Modeling, Identification and Control*, June 26-29, Shanghai, China, pp. 256~260, 2011. (EI)

发表专著:

- (1) Chunho Wu, **Na Dong**, Waihung Ip, Zengqiang Chen, Kaileung Yung, *Applying Chaotic Particle Swarm Optimization to the Template Matching Problem*, Springer, 2009.

授权专利:

- (1) “基于SPSA的制冷系统最小能耗的数据驱动控制方法”, 发明专利, 专利号: 201410213866.0 (已完成成果转化)
- (2) “基于SPSA的电力系统单区域负荷频率的数据驱动控制方法”, 发明专利, 专利号: 201610095937.0 (已完成成果转化)
- (3) “基于改进MFAC的制冷系统数据驱动节能控制系统及方法”, 发明专利, 专利号: 201710261254.2 (已完成成果转化)
- (4) “一种基于空调系统的可变参数无模型自适应控制方法”, 发明专利, 专利号: CN110094838A.2020 (已完成成果转化)

主要讲授课程:

- DSP原理及应用 (本科生)
自适应控制系统 (研究生)

其他 (社会兼职等):

- (1) 2016.06 至今: 担任中国自动化学会数据驱动控制学习与优化专业委员会委员
- (2) 2017.11 至今: 担任中国自动化学会自适应动态规划与强化学习专业委员会委员
- (3) 2018.4 至今: 担任天津市检验检测技术产业联盟委员
- (4) 担任《IEEE Transactions on automatic control》、《IEEE Transactions on Industrial Informatics》、《Nonlinear dynamics》、《自动化学报》等杂志审稿人

