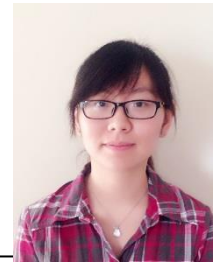


Chenyao Bai



Personal Information

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Education

2012/9 - 2016/7 Ph.D.: Communications Engineering

University of Warwick – United Kingdom

- ❖ Awarded: Received a full scholarship from the School of Engineering
- ❖ Dissertation: Error Control in Molecular Communications

2011/9 - 2012/9 Master of Science: Electronic Systems And Sensor Technology

University of Warwick – United Kingdom

- ❖ Ranked in Top 5% of class

2007/9 - 2011/7 Bachelor of Science: Optoelectronics Information Science And Technology

Shanxi University - China

- ❖ Ranked in Top 5% of class
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Work Experience

2021/02 - Current Postdoctoral Researcher, Fudan University, China

- ❖ My research fields includes:(1) Targeting the forefront of medical robotics technology, conducting innovative research in areas such as micro/nano robot driving and control, micro/nano sensor components, intelligent responsive materials, and micro/nano devices. Mainly including the realization of multi-physical field-driven micro/nano robots, magnetosonic integrated automatic control platforms, and high-precision manufacturing platforms for medical micro/nano devices. (2) Targeting the semiconductor intelligent manufacturing field (flexible circuit boards, Mini/MicroLed, etc.) in various production and operation scenarios such as unmanned quality inspection and quality control, exploring industrial defect detection methods based on deep learning, and building an industrial defect optical detection platform. (3) Targeting the inkjet printing process, which is the most promising manufacturing process for large-area display devices, developing an OLED macro-scale inkjet synchronous real-time observation and analysis device with independent intellectual property rights to achieve process and equipment debugging optimization and synchronous research and feedback on macro-scale ink droplet jetting and film-forming quality. This improves the OLED inkjet printing process and enhances product yield.

2016/07—2021/01 Lecturer, Shanghai Customs College, China

- ❖ I taught courses such as Fundamentals of Computer Applications, Data Analysis and Visualization Practice, and Python Programming Design. My research interests focused on various aspects of molecular communication systems, including channel modeling, signal processing, and channel coding.
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Research Projects

2022/05—2025/05 Key Area R&D Program of Guangdong Province, "Defect Detection and Process Parameter Correlation Analysis of OLED Macro-Scale Inkjet Synchronous Real-Time Observation and Analysis Device," 2.4 million CNY, as the principal investigator (PI).

2021/06—2023/02 China Postdoctoral Science Foundation, "Synchronous Drug Release Mechanism and Cooperative Control Strategy for Targeted Drug Delivery of Nanorobots," 80,000 CNY, as the PI.

2017/06—2020/06 Shanghai Municipal Education Commission Project, "Application of Molecular Communication in Virus Detection During Customs Clearance Process" (Project Number: 2312409K17), 50,000 CNY, as the PI.

Publications

Journal Articles:

- [1]. **Chenyao Bai**, Aoji Zhu, Xiwen Lu, Yunlong Zhu, Kezhi Wang (2023) 'Temporal Convolutional Network Based Signal Estimation for Magnetotactic Bacteria Communication System', *IEEE Transactions on NanoBioscience*. In Press. (doi: 10.1109/TNB.2023.3262555)
- [2]. Jiarui Zhu, **Chenyao Bai**, Yunlong Zhu, Kezhi Wang, Xiwen Lu, Jiatong Han (2023) 'Evolutionary Generative Adversarial Network based End-to-End Learning for Molecular Communication', *Nano Communication Networks*. In Press. (doi: 10.1016/j.nancom.2023.100456)
- [3]. **Chenyao Bai**, M. S. Leeson and M. D. Higgins (2015) 'Performance of SW-ARQ in Bacterial Quorum Communications', *Nano Communication Networks*, **6**(1), 3 – 14. (SCI)
- [4]. **Chenyao Bai**, M. S. Leeson and M. D. Higgins (2014) 'Minimum energy channel codes for molecular communications', *Electronics Letters*, **50**(23), 1669 – 1671. (SCI)
- [5]. **Chenyao Bai**, M. S. Leeson and M. D. Higgins (2015) 'Analysis of ARQ Protocols for Bacterial Quorum Communications', *Nano Communication Networks*, **7**(1), 65-79, 2016. (SCI)
- [6]. **Chenyao Bai**, M. S. Leeson and M. D. Higgins (2016) 'Throughput and energy efficiency optimization of ARQ protocols in bacterial quorum communications', *Transactions on Emerging Telecommunications Technologies*, **27**(8), 1128-1143. (SCI)
- [7]. Peng Liu, Chenjia Bai, Yingnan Zhao, **Chenyao Bai**, Weipin Zhao, Xianglong Tang (2020) 'Generating attentive goals for prioritized hindsight reinforcement learning', *Knowledge-Based Systems*, 106140. (SCI)
- [8]. C. Bai, L. Wang, Y. Wang, Z. Wang, R. Zhao, **C. Bai**, P. Liu (2023). Addressing Hindsight Bias in Multi-Goal Reinforcement Learning [J]. *IEEE Transactions on Cybernetics*, **53**(1):392-405. (SCI)
- [9]. Y. Liao, M. S. Leeson, M. D. Higgins, **C. Bai** (2016) 'In-to-Out (I2O) Body Wireless Body Area Network Systems Design: toward QoS-Aware Health Internet of Things (IoT) Applications' *Electronics*, **5**(3), 38. (SCI)

Book Chapters:

- [10]. M. S. Leeson, M. D. Higgins, **Chenyao Bai**, Y. Lu, X. Wang and R. Yu, "The Use of Coding and Protocols within Molecular Communication Systems", book chapter for Modeling, Methodologies and Tools for Molecular and Nano-scale Communications, J. Suzuki, T. Nakano and M. J. Moore (eds.), Springer, 2015.

Conference Papers:

- [11]. **Chenyao Bai**, 'Pedestrian Tracking and Trajectory Analysis for Security Monitoring' (2020), 2020 IEEE 5th Information Technology and Mechatronics Engineering Conference, Chongqing, China, 2020, pp. 1203-1208.
- [12]. **Chenyao Bai**, 'AGA-LSTM: An Optimized LSTM Neural Network Mode Based on Adaptive Genetic Algorithm' (2020), Journal of Physics Conference Series, 1507:012011.

- [13]. **Chenyao Bai** (2020), 'AGA-GRU: An Optimized GRU Neural Network Mode Based on Adaptive Genetic Algorithm', Journal of Physics Conference Series.
- [14]. **Chenyao Bai** (2020), 'Image Restoration Parameters Adaptive Selection Algorithm', 9th Applied Optics and Photonics China.
- [15]. Y. Liao, M. S. Leeson, M. D. Higgins and **Chenyao Bai** (2016), 'An incremental relay based cooperative routing protocol for wireless in-body sensor networks', 2016 IEEE 12th International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob), pp. 1-6.
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