

reliably separate the interference signal in the signal to ensure the communication quality of optical fiber communication network, the application effect is good.

The next work will be the recognition in laser communication network. The method in this paper separates and processes the denoised signals, which effectively reduces the crosstalk between the signals in the channel, thereby reducing the pseudo-code rate. In order to further improve the optimal design of the interference signal of optical fiber communication, it is also necessary to deeply study the reliability of the positioning result of the interference signal, so as to improve the quality of optical fiber communication.

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References

- [1] He, Y., Li, M., Shu, Y., Ning, Q., & Luo, A. (2021). Generation of h-shaped pulse rains induced by intracavity fabry-perot filtering in a fiber laser. *Optical Fiber Technology*, 61(14), 102453.
- [2] Ghosh, S., Kumar, H., Mukhopadhyay, B., & Chang, G. E. (2021). Design and modeling of high-performance dbr-based resonant-cavity-enhanced gesn photodetector for fiber-optic telecommunication networks. *IEEE Sensors Journal*, 21(8), 9900-9908.
- [3] Son, V. V., Duong, D. T., Hoang, T. M., Quan, D. T., & Hiep, P. T. (2020). Analysing outage probability of linear and non-linear rf energy harvesting of cooperative communication networks. *IET Signal Processing*, 14(8), 541-550.
- [4] Gao, Q., Qaraqe, K., & Serpedin, E. (2020). Rotated color shift keying for visible light communications with signal-dependent noise. *IEEE Communications Letters*, 24(4), 844-848.
- [5] Kaliteevskiy, N. A., Ivanov, V., Sterlingov, P., Downie, J., & Hurley, J. (2020). Transponder implementation penalty-accounted gaussian-noise-based performance modeling of fiber-optic transmission systems. *Journal of Lightwave Technology*, 38(8), 2253-2261.
- [6] Pan, X., Wang, X., Tian, B., Wang, C., & Guizani, M. (2021). Machine-learning-aided optical fiber communication system. *IEEE Network*, 35(4), 136-142.
- [7] Li, G., Hu, F., Zou, P., Wang, C, Lin, G. R., & Chi, N. (2020). Advanced modulation format of probabilistic shaping bit loading for 450-nm gan laser diode based visible light communication. *Sensors*, 20(21), 1-12.
- [8] Veroleto, T., Aubin, G., Lin, Y., Browning, C., & Ramdane, A. (2020). Mode locked laser phase noise reduction under optical feedback for coherent dwdm communication. *Journal of Lightwave Technology*, 38(20), 5708-5715.
- [9] Zhang N., Yang Y., Chen T., et al. (2021). Research on Optimization Policy Routing Technology of Optical Fiber Communication Network[J]. *Journal of Physics: Conference Series*, 1746(1):012084 .
- [10] Yu H., Li P., Zhang L., et al. (2020). Application of optical fiber nanotechnology in power communication transmission[J]. *AEJ - Alexandria Engineering Journal*, 59(6):5019-5030.
- [11] Zoofaghari, M., Arjmandi, H., Etemadi, A., & Balasingham, I. (2021). A semi-analytical method for channel modeling in diffusion-based molecular communication networks. *IEEE Transactions on Communications*, 69(6), 3957-3970.
- [12] Wang, F., & Li, H. (2021). Power allocation for coexisting multicarrier radar and communication systems in cluttered environments. *IEEE Transactions on Signal Processing*, 22(3), 1-10.
- [13] You S., Wang H., He Y., et al. Frequency Domain Design Method of Wavelet Basis Based on Pulsar Signal[J]. *Journal of Navigation*, 2020, 73(6):1223-1236.
- [14] Chen, G., Wang, J., Zuo, L., Zhao, D., & Wen, Y. (2020). Two-stage clutter and interference cancellation method in passive bistatic radar. *IET Signal Processing*, 14(6), 342-351.
- [15] Dehkordi, J. S., & Tralli, V. (2020). Interference analysis for optical wireless communications in network-on-chip (noc) scenarios. *IEEE Transactions on Communications*, 68(3), 1662-1674.
- [16] Wang Y., Jiang Z. (2020). Miniaturised multi-channel millimetre wave filter bank[J]. *Electronics Letters*, 56(24):1328-1330.
- [17] Mohajer, S., Bergel, I., & Caire, G. (2020). Cooperative wireless mobile caching: a signal processing perspective. *IEEE Signal Processing Magazine*, 37(2), 18-38.
- [18] Lin, X., M., Liu, S., Shi, Z., L. (2022). Multi-Sensor Signal Denoising Based on Adaptive Kalman Filter. *Computer Simulation*, 39(2):507-511.
- [19] Yang J, Zhou C. A fault feature extraction method based on LMD and wavelet packet denoising[J]. *Coatings*, 2022, 12(2): 156.
- [20] Liu, S., Chen, P., Woźniak, M. (2022) Image Enhancement-Based Detection with Small Infrared Targets. *Remote Sensing*, 14, 3232.
- [21] Liu, S., Bai, W., Srivastava, G. et al. (2020) Property of Self-Similarity Between Baseband and Modulated Signals. *Mobile Networks & Applications*, 25(4): 1537-1547.