Cheryl LEE (Kin Loi)

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Education

- **The Chinese University of Hong Kong** — Hong Kong SAR
  Ph.D. - Computer Science and Engineering; Supervisor: Prof. Michael R. Lyu — *Aug 2022 – Present*
  - **Research Interest**: Developing deep learning-based / optimization models to facilitate the reliability of cloud-scale software systems (AIOps).
  - **Highlighted Courses**: Foundations of Optimization, Graph Mining, Natural Language Processing, Data Science in Economics.
- **Cornell University** — NYC, U.S.
  Master - Operation Research & Information Engineering; GPA: 3.9/4.0 (Rank Top 1%) — *Aug 2021 – June 2022*
  - **Highlighted Courses**: Applied Machine Learning, Deep Learning, Optimization Methods, Modeling Under Uncertainty, E-Logistics.
- **Peking University** — Beijing, China
  Bachelor - Computer Science & Technology; GPA: 3.5/4.0 (Rank Top 30%) — *Aug 2016 – June 2020*
  - **Highlighted Courses**: Probability Theory, Statistics, Game Theory, Applications of Big Data Techniques, Database Systems, Data Structure and Algorithm, C++ Programming.

Experience

- **The Chinese University of Hong Kong** — Hong Kong SAR
  Research Assistant — *Jul 2021 - Jul 2022*
  - **Cross-modal Anomaly Detection**: Proposed a cross-modal attention-based approach to fuse text-based logs and multivariate metric time series for heterogeneous anomaly detection. Published a conference paper in ICSE'2023.
  - **Microservice Root Cause Localization**: Proposed a multi-modal GNN-based approach to troubleshoot microservices, which integrates anomaly detection and root cause localization into an end-to-end framework. Published a conference paper in ICSE'2023.
- **Apple Inc.** — Beijing, China
  Machine Learning Engineer (Internship) — *Jul 2020 - Dec 2020*
  - **Log Anomaly Detection**: Proposed an unsupervised "Gradual Clustering" log parser; Designed a Transformer-based detector and achieved over 98.29% top-1 accuracy.
  - **Duplicated Issue Identification**: Proposed a document-level algorithm based on Longest Common Substring to identify duplicated issues.
- **Deloitte Touche Tohmatsu CPA Ltd.** — Beijing, China
  Risk Analyst (Internship) — *Jul 2019 - Sep 2019*
  - **Report Analysis Automatization**: Leveraged BiLSTM-CRF to recognize name entities and extract relationships from the financial reports; Aligned the entities via BIRCH clustering.
  - **Company Measurement**: Devised a measurement system to evaluate the operation and potential of focused electric companies.
- **Baidu Inc.** — Beijing, China
  Data Analyst (Internship) — *Jul 2018 - Sep 2018*
  - **User Demand Incubation**: Incubated a traffic routing function by monitoring and mining behavior logs of users interacting with a voice-assisted smart device. The function's Page View achieved the top 5.
  - **Market Performance Investigation**: Investigated and reported the market performance of the low-price selling strategy of similar devices.

Skills

- **Coding Languages**: Python, C++, SQL — **Frameworks**: PyTorch, Pandas, Spark
- **Languages**: English, Mandarin

Publications

1. **C. Lee**, T. Yang, Z. Chen, Y. Su, and M. R. Lyu, "Eadro: An end-to-end troubleshooting framework for microservices on multi-source data," in *Proceedings of IEEE 45th International Conference on Software Engineering*, IEEE, 2023.
2. **C. Lee**, T. Yang, Z. Chen, Y. Su, and M. R. Lyu, "Maat: Performance metric anomaly anticipation for cloud services with conditional diffusion," in *ESEC/FSE '23: 31th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering, San Francisco, USA, November, 2023*, ***[Under Review]***, Ed., ACM, 2023.
3. **C. Lee**, T. Yang, Z. Chen, Y. Su, Y. Yang, and M. R. Lyu, "Hades: Heterogeneous anomaly detection for software systems via semi-supervised cross-modal attention," in *Proceedings of IEEE 45th International Conference on Software Engineering*, IEEE, 2023.
4. H. Yintong, Y. Su, **C. Lee**, and M. R. Lyu, "A semantic-aware parsing approach for log analytics," in *Proceedings of IEEE 45th International Conference on Software Engineering*, IEEE, 2023.
5. F. Liu, Y. Yin, and **B. Li**, "A novel probabilistic framework with interpretability for generator coherency identification," *International Journal of Electrical Power & Energy Systems*, vol. 143, p. 108 474, 2022, ISSN: 0142-0615.
6. T. Yang, **C. Lee**, J. Shen, Y. Su, Y. Yang, and M. R. Lyu, "An adaptive resilience testing framework for microservice systems," in *arXiv preprint*, 2022. URL: https://arxiv.org/abs/2212.12850.
7. T. Yang, **C. Lee**, J. Shen, Y. Su, Y. Yang, and M. R. Lyu, "Managing service dependency for cloud reliability: The industrial practice," in *Companion Proceedings of IEEE 33rd International Symposium on Software Reliability Engineering*, IEEE, 2022, pp. 67–68. DOI: 10.1109/ISSREW55968.2022.00041.
8. F. Liu, Y. Li, **B. Li**, J. Li, and H. Xie, "Bitcoin transaction strategy construction based on deep reinforcement learning," *Applied Soft Computing*, vol. 113, p. 107 952, 2021, ISSN: 1568-4946.

Patents

1. M. Lyu, **B. Li**, T. Yang, Z. Chen, and Y. Su, "A microservice fault diagnosis method and system," CN202211368449.4, 2022.
2. Z. Yang, F. Liu, and **B. Li**, "A faster-than-real-time observation and analysis method of voltage quality based on fpga," 2 022 109 279 359, 2022.
3. **B. Li**, F. Liu, H. Xie, W. Qi, and T. Yuan, "Big data analysis platform for ac / dc power grid with a high proportion of alternative energy," CN2020SR1652151, 2020.
4. Q. Shi, **B. Li**, F. Liu, H. Xie, and J. Zhai, "The platform for the intelligent identification of coherency generator clusters in the power system," CN2020SR1740513, 2020.

Honors and Awards

- **Honors**
  - **Postgraduate Studentship**, The Chinese University of Hong Kong *2022*
  - **Merit Scholarship**, Cornell University *2020*
- **Competitions Awards**
  - **National 3rd Prize**, The 17th Challenge Cup *2021*
  - **First Prize**, The 4th Baidu star entrepreneurship competition *2020*
  - **Meritorious Winner**, Mathematical Contest in Modeling *2018*

Others

- **Bachelor Thesis**: Proposed a framework for automatic high-frequency Bitcoin transactions based on deep reinforcement learning. Published in Applied Soft Computing (SCI Q1)