

JOHN BOAZ LEE

Researcher working in the areas of deep learning, graph & data mining, reinforcement learning, & machine learning.

Education

- 2015–2019 **Worcester Polytechnic Institute**, *PhD in Computer Science (GPA 4.0/4.0)*.
Thesis: Deep Learning on Graph-structured Data
Advisor: Xiangnan Kong
- 2010–2012 **University of the Philippines – Diliman**, *MS in Computer Science (GPA 4.0/4.0)*.
Thesis: A Link Prediction Algorithm for Heterogeneous Bibliographic Information Networks
Advisor: Henry Adorna
- 2004–2008 **Silliman University**, *BS in Computer Science (GPA 3.1/4.0)*.
Thesis: Dumaguete e-Traveler – A Knowledge-based Decision Support System
Advisor: Dave E. Marcial

Experience

- 2020–present **Facebook Research**, *Research Scientist. CA, USA*.
Working on sequence & graph-based machine learning; deployed two new models within first 6 months.
Supervisor: Aude Hofleitner
- summer of **Facebook Research**, *Research Intern. CA, USA*.
2019 Deployed a recurrent pipeline which generated unified embeddings of entities across FB's family of apps.
Supervisor: Nima Noorshams
- summer of **Adobe Research**, *Research Intern. CA, USA*.
2018 Worked on a deep learning model for user stitching which resulted in two papers & a patent submission.
Supervisor: Ryan A. Rossi
- summer of **Xerox PARC**, *Research Intern. CA, USA*.
2017 Led a project on graph classification & collaborated on a network representation learning project.
Supervisor: Ryan A. Rossi
- 2015–2019 **Worcester Polytechnic Institute**, *Research Assistant. MA, USA*.
Researched & developed deep learning solutions for relational data. Also worked as a TA from 2015-2018.
Supervisor: Xiangnan Kong
- 2012–2015 **Ateneo de Manila University**, *Instructor. Manila, Philippines*.
Handled the ff. courses: algorithms & data structures, Java/C# programming, & design patterns.
Supervisor: Proceso Fernandez Jr.
- fall of 2012 **Nara Institute of Science and Technology**, *Research Intern. Nara, Japan*.
Proposed & implemented a method for automatic software patch reviewer recommendation.
Supervisor: Akinori Ihara
- 2010–2012 **University of the Philippines – Diliman**, *Instructor. Manila, Philippines*.
Handled the ff. courses: C programming, software engineering, algorithms & data structures.
Supervisor: Rommel Feria
- 2008–2009 **Interprise Solutions**, *Software Engineer. Cebu, Philippines*.
Designed & developed tools used in the application development framework of an ERP system.
- spring of **Neri and Hu Design and Research Office**, *Software Engineer Intern. Shanghai, China*.
2006 Designed & implemented an in-house inventory management system.

Publications

- [1] X. Dai, X. Kong, T. Guo, **J. B. Lee**, X. Liu, & C. Moore. Recurrent networks for guided multi-attention classification. In *Proc. of ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD)*. 2020.
- [2] N. K. Ahmed, R. A. Rossi, **J. B. Lee**, T. L. Willke, R. Zhou, X. Kong, & H. Eldardiry. Role-based graph embeddings. *IEEE Transactions on Knowledge and Data Engineering (TKDE)*. (accepted).
- [3] R. A. Rossi, D. Jin, S. Kim, N. K. Ahmed, D. Koutra, & **J. B. Lee**. On proximity and structural role-based embeddings in networks: Misconceptions, techniques, and applications. *ACM Transactions on Knowledge Discovery from Data (TKDD)* 14, 5. 2020.
- [4] **J. B. Lee**, X. Kong, C. M. Moore, & N. K. Ahmed. Deep parametric model for discovering group-cohesive functional brain regions. In *Proc. of SIAM International Conference on Data Mining (SDM)*. 2020.
- [5] X. Dai, X. Kong, X. Liu, **J. B. Lee**, & C. Moore. Dual-attention recurrent networks for affine registration of neuroimaging data. In *Proc. of SIAM International Conference on Data Mining (SDM)*. 2020.
- [6] **J. B. Lee**, R. A. Rossi, S. Kim, N. K. Ahmed, & E. Koh. Attention models in graphs: A survey. *ACM Transactions on Knowledge Discovery from Data (TKDD)* 13, 6. 2019.
- [7] **J. B. Lee**, R. A. Rossi, X. Kong, S. Kim, E. Koh, & A. Rao. Graph convolutional networks with motif-based attention. In *Proc. of ACM International Conference on Information and Knowledge Management (CIKM)*. 2019.
- [8] **J. B. Lee** & X. Kong. Learning compact graph representations via an encoder-decoder network. *Applied Network Science (ANS)* 5, 1. 2019.
- [9] G. Nguyen, **J. B. Lee**, R. Rossi, N. Ahmed, E. Koh, & S. Kim. Dynamic network embeddings: From random walks to temporal random walks. In *Proc. of IEEE International Conference on Big Data (BigData)*. 2018.
- [10] **J. B. Lee**, R. A. Rossi, & X. Kong. Graph classification using structural attention. In *Proc. of ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD)*. 2018.
- [11] G. Nguyen, **J. B. Lee**, R. Rossi, N. Ahmed, E. Koh, & S. Kim. Continuous-time dynamic network embedding. In *Comp. Proc. of International Conference on World Wide Web (WWW)*. 2018.
- [12] **J. B. Lee**, X. Kong, Y. Bao, & C. Moore. Identifying non-linear contrasting networks from time-series data: Application to brain network analysis. In *Proc. of SIAM International Conference on Data Mining (SDM)*. 2017.
- [13] **J. B. Lee**, A. Ihara, A. Monden, & K. Matsumoto. Patch reviewer recommendation in OSS projects. In *Proc. of Asia-Pacific Software Engineering Conference (APSEC)*. 2013.
- [14] **J. B. Lee**, M. Ybañez, M. M. de Leon, and M. R. E. Estuar. Understanding the behavior of Filipino Twitter users during disaster. *Journal on Computing (JoC)* 3, 2. 2013.
- [15] **J. B. Lee** & M. Ybañez. Characterizing behavior and features of participants and observers during disaster on Twitter. In *Proc. of International Conference on Computer Games Multimedia and Allied Technologies (CGAT)*. 2013.
- [16] **J. B. Lee** & H. Adorna. Link prediction in a modified heterogeneous bibliographic network. In *Proc. of International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*. 2012.
- [17] **J. B. Lee**, G. Cabunducan, R. Castillo, F. G. Cabarle, & J. A. Malinao. Uncovering the social dynamics of online elections. *Journal of Universal Computer Science (JUICS)* 18, 4. 2012.

- [18] J. A. Malinao, R. A. B. Juayong, E. R. F. Oquendo, R. M. U. Tadtas, **J. B. Lee**, J. B. Clemente, M. S. Gaabucayan-Napalang, J. R. F. Regidor, & H. N. Adorna. A quantitative analysis-based algorithm for optimal data signature construction of traffic data sets. *Journal of Information Processing (JIP)* 20, 3. 2012.
- [19] G. Cabunducan, R. Castillo, & **J. B. Lee**. Voting behavior analysis in the election of Wikipedia admins. In *Proc. of International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*. 2011.
- [20] J. A. Malinao, R. A. B. Juayong, E. R. F. Oquendo, R. M. U. Tadtas, **J. B. T. Lee**, J. B. Clemente, M. S. Gaabucayan-Napalang, J. R. F. Regidor, and H. N. Adorna. A quantitative analysis-based algorithm for optimal data signature construction of traffic data sets. In *Proc. of International Conference on Computers, Networks, Systems, and Industrial Engineering (CNSI)*. 2011.

MANUSCRIPTS

- [1] **J. B. Lee**, X. Kong, & C. Moore. Multi-level group-wise brain region discovery. (*in submission*).
- [2] Y. Hang, **J. B. Lee**, X. Kong, & Y. Li. Sparsifying the parameters of deep SNNs. (*in submission*).

Professional service

- PC member CIKM ('20), BigData ('18, '20)
- Reviewer VLDB Journal ('20), TKDD ('17), TKDE ('17), & JUCS ('12)
- Ext. reviewer KDD ('16, '17, '18, '19), SDM ('17, '18, '19), ICLR ('18, '19), IJCAI ('17, '19), ICDM ('19), ASONAM ('17, '18), NeurIPS ('16, '18), ICDE ('17), AISTAT ('17), CIKM ('16), & AAAI ('16)

Awards

- 2018 KDD Travel Award, ACM & NSF
- 2018 GRIE Best Poster Honorable Mention, WPI CS DEPT.
- 2013 Best Presentation Award, IWESEP
- 2012 Honors Graduate, PHI KAPPA PHI
- 2011 Best Poster Paper, ASONAM

Computer skills

- Programming Python, Java, C#, C, \LaTeX , Haskell, & SQL
- Frameworks PyTorch, TensorFlow, scikit-learn, SciPy, Matplotlib, & NumPy
- Tools Jupyter Notebook, VS Code, GNU Screen, Virtualenv, Git, & Mercurial

Languages

- Native English, Tagalog, & Cebuano
- Intermediate Mandarin

References

A full list of references is available upon request.