CV: Khoi-Nguyen Tran

Contact Information

Postdoctoral Researcher
IBM Research
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Objective

To develop practical and relevant AI solutions for business.

Research Interests

Data Science, Machine Learning, Text Mining, AI for Business, Cybercrime

Employment

IBM Research – Australia

- Postdoctoral Researcher. Cognitive Analytics. Jun 2016 – Current
  - Manager: Dr. Christopher J. Butler
  - Developed end-to-end machine learning solutions for internal business units, from concept to production ready packages.
  - Developed techniques for chunking documents and generating learning objectives. Work recognised as division led expertise and a publication is under review.
  - Transitioned and significantly improved past research components for business teams, introducing a new machine learning component and validation experiments, and simplifying and parallelizing execution pipelines.
  - Academic style research work included geolocation of Twitter tweets, detecting vandalism on Wikipedia, and predicting the price of an item.
  - Publications: [3], [15]

Australian Federal Government

- Data Scientist. Research and Development Team. May 2015 – Jun 2016
  - Developed modelling, profiling, and text analytics solutions in R and SQL.
  - Translated analysts' observations and business knowledge into code, producing data visualizations and reports.

Australian National University

- Research Assistant & Co-founder. Cybercrime Observatory. Mar 2013 – May 2015
  - Supervisors & Co-founders: Dr. Mamoun Alazab, Prof. Roderic Broadhurst
  - Projects: Investigating Malicious Spam Emails, History of Cybercrime Activities
  - Developed a novel detection technique for malicious content (attachments or URLs) using only email text.
  - Publication: [7].
- Research Assistant. Research School of Computer Science. Jan 2011 – May 2015
  - Supervisors: Prof. Peter Christen, Dr. Scott Sanner, Dr. Lexing Xie
  - Project: Detecting Abnormal Text Values
    - Researched techniques to automatically detect abnormal text values from large databases using only the distribution of text data within those databases.
  - Project: New Objective Functions for Social Collaborative Filtering
    - Developed a Facebook app to collect participants' data and recommend content from our novel collaborative filtering algorithms.
  - Project: Synthetic Data Generation and Corruption
    - Developed a user interface for a novel synthetic data generation method that mimics real-world errors through a variety of data corruption methods.
  - Publications: [1], [4], [16]

Education

Australian National University

- Ph.D. in Engineering and Computer Science — Feb 2010 – Jul 2015
  - Area of Study: Machine Learning Applications
  - Thesis Title: *Detecting Vandalism on Wikipedia across Multiple Languages*
  - Supervisors: Prof. Peter Christen, Dr. Scott Sanner, Dr. Lexing Xie
  - Publications: [6], [8], [9], [10], [11]
- Bachelor of Computer Science, with First Class Honours — Feb 2006 – Dec 2009
  - GPA: 6.75 / 7. Overall course average of High Distinction.
  - Honours Thesis Topic: *Semantic Sensor Composition*
    - Supervisor: Dr. Michael Compton
    - Publications: [2], [5], [12]
  - Individual Research Projects: *Detecting Network Anomalies*
    - Supervisor: Dr. Huidong (Warren) Jin
    - Publications: [13], [14]

Skills

Languages:

- Experienced: Java, Python, R, SQL, HTML, JavaScript, Unix Shell Scripting
- Familiar: Scala, CSS

Software:

- Experienced: Scikit-learn, JQuery, Flask, MySQL, dplyr / tidyverse, Eclipse, PDFBox, GitHub, ZenHub, IBM Cloud, LaTeX, Word/Excel/Powerpoint, Ubuntu Linux, Windows, macOS
- Familiar: Tensorflow, NumPy, Docker, Kubernetes, NLTK, Stanford NLP

Academic Awards

Australian National University

- ANU Supplementary Scholarship, 2010–2014
- Australian Postgraduate Award (APA), 2010–2014
- ANU College of Engineering and Computer Science Dean's List, 2009
- ANU College of Engineering and Computer Science Dean's Prize, 2008
- Boyapati Prize for 2nd Year Computer Science and Mathematics, 2007
  - Awarded to students obtaining a High Distinction (highest grade possible) in two computer science and two mathematics courses in their 2nd year of study.
- Bachelor of Computer Science (Honours) Scholarship, 2006–2009

Service

Mentor to 3 industry professionals for Data Science and Machine Learning, 2017-2018
Invited Talk, RMIT Vietnam, 2017
Invited Participant, Future Shapers Forum, 2017
Delegate, Australia-Vietnam Young Leadership Dialogue, 2017
Volunteer, Australasian Data Mining Conference (AusDM), 2013
Volunteer, Open Source Developers' Conference (OSDC), 2011
Microsoft Student Ambassador, 2011–2012
Volunteer and President, ANU Computer Science Students' Association, 2007–2012

References

Available upon request.

Cited Publications

Full list available at Google Scholar:
http://scholar.google.com.au/citations?user=ihFcT5QAAAAJ

[1] P. Christen, R. W. Gayler, K.-N. Tran, J. Fisher, and D. Vatsalan. Automatic Discovery of Abnormal Values in Large Textual Databases. *Journal of Data and Information Quality (JDIQ)*, 2016.

[2] M. Compton, H. Neuhaus, K. Taylor, and K. Tran. Reasoning about Sensors and Compositions. In *Proceedings of the 2nd International Workshop on Semantic Sensor Networks (SSN)*, 2009.

[3] J. H. Lau, L. Chi, K.-N. Tran, and T. Cohn. End-to-end Network for Twitter Geolocation Prediction and Hashing. In *Proceedings of the 8th International Joint Conference on Natural Language Processing (IJCNLP)*, 2017.

[4] J. Noel, S. Sanner, K.-N. Tran, P. Christen, L. Xie, E. V. Bonilla, E. Abbasnejad, and N. D. Penna. New Objective Functions for Social Collaborative Filtering. In *Proceedings of the 21st International World Wide Web Conference (WWW)*, 2012.

[5] K.-N. Tran. Semantic Sensor Composition, 2009. Honours Thesis, Australian National University.

[6] K.-N. Tran. *Detecting Vandalism on Wikipedia across Multiple Languages*. PhD thesis, Australian National University, 2015.

[7] K.-N. Tran, M. Alazab, and R. Broadhurst. Towards a Feature Rich Model for Predicting Spam Emails containing Malicious Attachments and URLs. In *Proceedings of the 11th Australasian Data Mining Conference (AusDM)*, 2013.

[8] K.-N. Tran and P. Christen. Cross Language Prediction of Vandalism on Wikipedia Using Article Views and Revisions. In *Proceedings of the 17th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD)*, 2013.

[9] K.-N. Tran and P. Christen. Identifying Multilingual Wikipedia Articles based on Cross Language Similarity and Activity. In *Proceedings of the 22nd ACM Conference of Information and Knowledge Management (CIKM): Poster*, 2013.

[10] K.-N. Tran and P. Christen. Cross-Language Learning from Bots and Users to detect Vandalism on Wikipedia. *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, 2015.

[11] K.-N. Tran, P. Christen, S. Sanner, and L. Xie. Context-Aware Detection of Sneaky Vandalism on Wikipedia across Multiple Languages. In *Proceedings of the 19th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD)*, 2015.

[12] K.-N. Tran, M. Compton, J. Wu, and R. Goré. Short Paper: Semantic Sensor Composition. In *Proceedings of the 3rd International Workshop on Semantic Sensor Networks*, 2009.

[13] K.-N. Tran and H. Jin. Fusion of Decision Tree and Gaussian Mixture Models for Heterogeneous Data Sets. In *Proceedings of the International Conference on Multimedia Technology (ICIMT)*, 2009.

[14] K.-N. Tran and H. Jin. Detecting Network Anomalies in Mixed-Attribute Data Sets. In *Proceedings of the 3rd International Conference on Knowledge Discovery and Data Mining (WKDD)*, 2010.

[15] K.-N. Tran, J. H. Lau, D. Contractor, U. Gupta, B. Sengupta, C. J. Butler, and M. Mohania. Document Chunking and Learning Objective Generation for Instruction Design. In *(under review)*, 2018.

[16] K.-N. Tran, D. Vatsalan, and P. Christen. GeCo - An Online Personal data Generator and Corruptor. In *Proceedings of the 22nd ACM Conference of Information and Knowledge Management (CIKM): Demo*, 2013.