

CV: Khoi-Nguyen Tran

CONTACT
INFORMATION IBM Research
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OBJECTIVE To apply my research skills in industry by developing practical AI solutions for business.

RESEARCH
INTERESTS Data Science, Machine Learning, Deep Learning, Text Mining, AI for Business, Cyber-security.

EMPLOYMENT **IBM Research – Australia**

- Research Scientist. Cognitive Analytics. Jun 2018 – Current
 - Manager: Dr. Christopher J. Butler.
 - Developed a chatbot interaction interface with unique background coordination methods between the front-end UI and Watson Assistant service.
 - Developed text analytics pipelines for clients in Watson Studio and Anaconda.
 - Other research work includes analysis of USPTO patents and detection of malicious URLs.
 - Patents: 3 pending.
 - Defensive Patent Publications: 5 published.
- Postdoctoral Research Scientist. Cognitive Analytics. Jun 2016 – Jun 2018
 - 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.
 - Transitioned and improved past research components for business teams, introducing a new machine learning component and validation experiments, simplifying and parallelizing execution pipelines, and standardizing APIs for access with JARs and RESTful services.
 - Other research work includes geolocation of Twitter tweets, detecting vandalism on Wikipedia, and predicting the price of an item.
 - Publications: [3], [15].
 - Patents: 2 pending.
 - Defensive Patent Publications (IP.com): 3 published.

Australian Federal Government

- Data Scientist. Research and Development Team. May 2015 – Jun 2016
 - Developed modelling, profiling, and text analytics solutions in R and SQL.
 - Developed code from analysts' observations and business knowledge, producing data visualizations and automated and on-demand 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: [8], [9], [10], [11], [6].
- 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

- Invited Researcher, 6th Heidelberg Laureate Forum, 2018.
 - 200 young researchers in mathematics and computer science are selected to participate each year from around the world.
- Invited Talk, RMIT Vietnam, 2017.
- Invited Participant, Future Shapers Forum, 2017.

- Invited Delegate, Australia-Vietnam Young Leadership Dialogue, 2017.
 - 19 delegates were selected from 375 applications.
- 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.
 - Winner, Event of the Year 2012 and Runner-Up, Large Club of the Year 2012.

REFERENCES Available upon request.

CITED Full list available at Google Scholar:
PUBLICATIONS <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 *Proceedings of the 11th International Conference on Education Data Mining (EDM)*, 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.