Thuan Luong Nguyen

Advanced Data Analytics – Graduate School – The University of North Texas
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Education

Doctor of Philosophy (Ph.D.) in Information Systems
08/2012 – 12/2016
College of Engineering and Computing
Nova Southeastern University
Fort Lauderdale, Florida

Master of Sciences (M.S.) in Information Technology and Management
08/2007 – 12/2011: Graduated with High Distinction
Naveen Jindal School of Management
The University of Texas at Dallas
Richardson, Texas

Bachelor of Sciences (B.S.) in Computer Sciences
01/1993 – 12/1995: Graduated with Highest Honors
College of Natural Sciences
The University of Texas at Austin
Austin, Texas

Dissertation Title: Assessing Knowledge Management Values by Using Intellectual Capital to Measure Organizational Performance

Professional Certification

Graduate Certificate in Data Mining and Business Intelligence
SAS Institute, Inc. and the University of Texas at Dallas

Research Interests

- Artificial Intelligence (AI), Deep Learning, Machine Learning, Natural Language Processing (NLP), Structures of Artificial Neural Networks
- Big Data Analytics and applications
- Cloud Technology and Mobile Application Development for Data Analytics
- Knowledge Management and Intellectual Capital in the New Era of Artificial Intelligence, Machine Learning, and Deep Learning
- Software Engineering and New Programming Languages

Current Research

- Artificial Intelligence Deep Learning: Natural Language Processing (NLP)
    - Generative AI with Large Language Models
    - Generative AI with Stable Diffusion Platform
    - Conversational AI: Design AI Dialogue Systems, based on Speech Act Theory, Using Object-Oriented (OO) Methodology

- Artificial Intelligence Deep Learning: Mixed neural networks that have core components belonging to different types of neural networks, e.g., convolutional neural network and recurrent neural network.
    - Temporal Convolutional Networks (TCN)
    - Graph Neural Networks (GNN) and Graph Convolutional Networks (GCN)

- Artificial Intelligence Deep Learning: Neural Structured Learning using structured signals with TensorFlow and applications.

Teaching Experiences

The University of North Texas: 2017 – Present

The University of North Texas (UNT) is a public institution of higher learning, the biggest university in the North Texas University System. UNT serves approximately 47,000 students in the Dallas-Fort Worth Metroplex. Selected duties include:

- Clinical Associate Professor
- Teaching graduate courses in the Master of Science in Advanced Data Analytics, Toulouse Graduate School
- Conduct research on AI deep learning, machine learning, big data analytics, and information systems

- Curriculum development: Having developed the new curriculum of the following courses:
    - ADTA 5760: Generative AI with Large Language Models
    - ADTA 5750: AI Applied Natural Language Processing (NLP)
    - ADTA 5560: AI Recurrent Neural Networks for Sequence Data
    - ADTA 5550: AI Deep Learning with Big Data
    - ADTA 5340/ INSD 5170: Discovery and Learning with Big Data
    - ADTA 5250/ INSD 5150: Large Data Visualization
    - ADTA 5240/ INSD 5160: Harvesting, Storing, and Retrieving Data
    - IPAC 4340: Methods for Discovering and Learning Data
    - IPAC 4240: Principles of Data Structures, Harvesting, and Wrangling

- Curriculum outline creation:
    - INDS 4000: Modeling and Data Visualization

- Courses taught (Both Online and Face-to-Face):
    - ADTA 5760: Generative AI with Large Language Models
    - ADTA 5750: AI Applied Natural Language Processing (NLP)
    - ADTA 5560: AI Recurrent Neural Networks for Sequence Data
    - ADTA 5550: Deep Learning with Big Data
    - ADTA 5900: Special Problems: AI Deep Learning
    - ADTA 5340/ INSD 5170: Discovery and Learning with Big Data
    - ADTA 5250/ INSD 5150: Large Data Visualization
    - ADTA 5240/ INSD 5160: Harvesting, Storing, and Retrieving Data
    - CSCE 5215: Machine Learning
    - CSCE 5320: Scientific Data Visualization
    - HLSV 5300: Information Systems for Healthcare Management

The University of Texas at Dallas: 2012 – 2017

The University of Texas at Dallas (UTD) is a higher-education institution, part of the University of Texas System, is located in the North Dallas Area. The University serves approximately 27,000 students.

- Being an adjunct professor teaching courses in the Department of Information Systems, Naveen Jindal School of Management, for over five years, each semester, teaching at least two courses.

- Curriculum development: Having developed the new curriculum of the following courses:
    - MIS 4330 and ITSS 4330: Systems Analysis and Design
    - MIS 4312 and ITSS 4312: Mobile Web Application Development
    - ITSS 3312: Object-Oriented Programming
    - MIS 4310 (BA 4331): Programming with Java
    - MIS 4370: Management Information Systems Topics

- Having taught major IS topics including:
    - Systems Analysis and Design
    - Programming and Software Engineering Methodology
    - Database Fundamentals
    - Mobile Web Application Development
    - Software systems and Cloud Technology

Directing Ph.D. Students

- University of North Texas (UNT): 2018 – 2022
    - Ph.D. student: Elise Victor
    - Member of the Ph.D. Committee

Professional Activities

- Member of the Digital Strategy and Innovation Advisory Committee
  - University of North Texas: 02/2019 – Present
- Member of the Technology Task Force Committee
  - University of North Texas: 02/2019 – Present
- Member of the CAS-CC Committee
  - University of North Texas: 08/2021 – Present
- Member of Technical Program Committee (TPC): 11/2022 – Present
  - IEEE International Conference on Informatics, Noida, Uttar Pradesh, India
- Member of the University Writing Committee
  - University of North Texas: 09/2018 – 05/2022
- Chair of DSS and Expert Systems Track
  - Southwest Decision Science 49th Conference (SWDSI) 2019

Professional Membership

- Association for Information Systems (AIS): Member
- Decision Science Institute (DSI): Member
- IEEE (Institute of Electrical and Electronics Engineers): Member
- INFORMS: Member

Awards

- Awarded with the **Distinguished College Scholar Award** of the University of Texas at Austin
- Awarded with the **High Distinction Academic Honors** of the University of Texas at Dallas
- Awarded with the **Pride Award** of Nortel Networks Inc. for successful design and development of new products for GPRS and UMTS wireless networks

Other Professional Experiences

- Data analysis using SAS, SPSS, and STATA, and programming for data analytics applications with Python and R programming language.

- Information Technology (IT) and Management Information Systems (MIS), including database (Oracle, Microsoft SQL, MySQL, DB2), business intelligence and statistical analysis (SAS, SPSS, STATA), Enterprise Resources Planning (SAP).

- Designing and developing software applications with the cloud technology using Google Cloud Platform.

- Designing and developing software applications with popular programming languages, including Python, Java, C/C++, C#, PHP, COBOL, and Visual Basic

- Designing and developing mobile applications with popular web development programming languages such as HTML5, CSS3, Javascript, PHP, Python, and well-known libraries like JQuery, frameworks like JQuery mobile.

- Working with Windows and Linux Servers including business application servers (SAS, SAP), database servers (Microsoft SQL Server, MySQL), Web Servers (Apache)

- (Over 10 years) Software and system design of telecommunication and data communication systems, including popular wireless technologies (2nd-Generation: GSM, TDMA, CDMA (cdmaOne); 2.5-Generation: GPRS and EDGE; 3rd-Generation: UMTS (WCDMA) and CDMA2000), wireless over data networks, and optical networks.

Conference Presentation and Workshops

Thuan L Nguyen (2023). Conversational AI: Design AI Dialogue Systems With Object-Oriented Methodology. In *Proceedings of the EDSIG Conference on Information Systems and Computing Education (EDSIGCON) 2023*, Albuquerque, New Mexico, USA, November 01 – 04, 2023.

Thuan L Nguyen (2023). Conversational AI: Create AI Dialogues with Google Cloud Platform CX (Workshop). Panama City, Panama, August 10 – 12, 2023.

Thuan L Nguyen (2022). AI Natural Language Processing with GCP Dialogflow. In *Proceedings of the EDSIG Conference on Information Systems and Computing Education (EDSIGCON) 2022*, Clearwater, Florida, USA, November 02 – 05, 2022.

Thuan L Nguyen (2022). AI Deep Learning with Convolutional Neural Network in Cloud. IEEE First International Conference on Informatics – IEEE & Japyee ITT, Noida, Uttar Pradesh, India, April 14 – 16, 2022.

Thuan L Nguyen (2021). AI Deep Learning With TensorFlow and Keras in Cloud. In *Proceedings of the EDSIG Conference on Information Systems and Computing Education (EDSIGCON) 2021*, Washington D.C., D.C., USA, November 03 – 06, 2021.

Thuan L Nguyen (2019). AI Deep Learning Convolutional Neural Networks with TensorFlow and Keras in Google Cloud Platform. In *Proceedings of the Americas Conference on Information Systems (AMCIS) 2019*, Cancun, Mexico, August 15 – 17, 2019.

Thuan L Nguyen (2019). AI Deep Learning with Artificial Neural Networks – A Hands-On Workshop. In *Proceedings of the 49th Annual Conference of Southwest Decision Science Institute*, Houston, Texas, USA, March 12 – 17, 2019.

Thuan L Nguyen (2018). Five Big Vs of Big Data and Organizational Culture in Firms (Poster). *INFORMS Annual Meeting 2018*, November 04 – 07, 2018, Phoenix, Arizona, USA.

Thuan L Nguyen (2018). Teaching Big Data and Machine Learning Using Cloud Technology. In *Proceedings of the 24th Americas Conference on Information Systems (AMCIS)*, August 16 – 18, 2018, New Orleans, LA, USA.

Thuan L Nguyen (2018). *Apache Hadoop Ecosystem and Cloud Technology – A Hands-On Workshop*. The 49th Annual-Meeting Conference of Decision Sciences Institute - Southwest Region (SWDSI), March 7 - 10, 2018, Albuquerque, New Mexico, USA.

Peer-Reviewed Publications

Thuan L Nguyen (2019). A Framework for Five Big Vs of Big Data and Organizational Culture in Firms (Research Paper). IEEE Publisher. https://ieeexplore.ieee.org/document/8622377.

Thuan L Nguyen (2019). AI Deep Learning with Artificial Neural Networks – A Hands-On Workshop. In *Proceedings of the 50th Annual Conference of Southwest Decision Science Institute*, Houston, Texas, USA, March 12 – 17, 2019.

Thuan L Nguyen (2018). Teaching Big Data and Machine Learning using Cloud Technology. In *Proceedings of the 24th Americas Conference on Information Systems (AMCIS)*, August 16 – 18, 2018, New Orleans, LA, USA.

Thuan L Nguyen (2018). A Review of the Theoretical Views of the Firm - The Foundation of Research on the Impact of Knowledge Management and Intellectual Capital on Organizational Performance. In *Proceedings of the 49th Annual-Meeting Conference of Decision Sciences Institute - Southwest Region (SWDSI), March 7 - 10, 2018, Albuquerque, New Mexico, USA.*

Thuan L Nguyen (2017). Setting Up a Hadoop System in Cloud – A Lab Activity for Teaching Big Data Analytics. In *Proceedings of 2017 EDSIG Conference on Information Systems and Computing Education*, Austin, Texas, USA, November 5 – 8, 2017.

Thuan L Nguyen (2017). Evaluate Impacts of Big Data on Organizational Performance: Using Intellectual Capital as a Proxy. In *Proceedings of the 4th International Conference on Advances in Big Data Analytics*, Las Vegas, Nevada, USA, July 17 – 20, 2017.

Technical Book Review – Conference Research Paper Review

Conference paper review: 11/2023
--) Southeast Decision Sciences Institutes (SEDSI) Annual Meeting 2024
--) Paper: Leveraging Graph Neural Networks For Analyzing Product Activity

Conference paper review: 11/2021
--) Southeast Decision Sciences Institutes (SEDSI) Annual Meeting 2022
--) Paper: A Network Science Approach for Stock Performance

Textbook Review: 05/2020
--) Publisher: Prospect Press
--) Book title: "Big Data Technologies" by Arpen Asllani

Employment History

Advanced Data Analytics – Toulouse Graduate School – The University of North Texas
2017 – Present
Clinical Associate Professor

Teaching, doing research, and developing curriculum of graduate courses in the Master of Science in Advanced Data Analytics

Naveen Jindal School of Management – The University of Texas at Dallas
06/2012 - 2017
Adjunct Professor

Teaching Information Systems courses in the Department of Information Systems, Naveen Jindal School of Management

Naveen Jindal School of Management – The University of Texas at Dallas
06/2005 – 05/2012
IT Infrastructure Manager
Software System Specialist III
Achievements

- Successfully designed, developed, and deployed the web application to control the accounting print system that has been used in the computer labs of the Naveen Jindal School of Management for the last seven years. It is a web application developed with the .NET framework, the object-oriented C# programming language, and the Microsoft SQL Server database. The system provides necessary features to manage all activities - for both the administrators and the users - related to the lab printing. The system automatically provides the correct number of pages each student can print without charge based on the number of business courses - offered by the Naveen Jindal School of Management - he or she has registered each semester. The system uses the data, *i.e., who has registered business courses and how many courses*, extracted from the Registrar Office's database. All the activities of using the system and administering it are conveniently done in web browsers. The system allows students to log in with their UTD net ID, activating their print account once every semester, printing, and tracking each print job (*who, when, how many pages, from which computer, etc.*) he or she has released. The system allows the administrators to update the user data, *e.g., number of registered courses*, on the fly, and track every printing activity of each user. The system significantly reduces the printing cost in the computer labs for the school (75%) each

semester, especially the cost of cartridges and paper (*in comparison with the cost incurred in the labs before the deployment of the system.)*

- Successfully designed, developed, and deployed the Online Asset Management System (OAMS) that was used by different departments such as the Executive Education to manage all the property items under their supervision. The system was very easy and convenient to use. Both the user and the administrators could perform all their activities in web browsers. The OAMS system was designed and developed based on the implementation of a Supply Chain Management workflow that could manage the whole usage life of property items starting with the moment of being requested to acquire, then approved, ordered, delivered, used, moved, transferred, etc., and finally ending with the moment being released from the system, either for surplus or thrown away. The user could use the system to track and record any change in the profile of each property item on the fly, no matter what kind of change occurred, either location or custodianship, etc. The departments successfully used this system to manage all their properties until the PeopleSoft Property Management system was deployed by the UTD Procurement office.

- Successfully deployed popular analytic software such as SAS, STATA, GAUSS, Minitab, Palisade @RISK, etc. in a very cost-efficient environment. These academic software applications are used heavily by faculty members, Ph. D. students and graduate students in their teaching, learning, and research. For example, SAS is deployed in three servers which the user can access from anywhere on campus and even from home. The user can quickly move from one server to another and run SAS on the same data set without having to move the data.

Responsibilities

- Responsible for the information technology infrastructure (software, hardware, systems) that supports both the academic and administrative activities of the Naveen Jindal School of Management.

- Responsible for providing and supporting (set up and maintain) a computing environment that could fulfill all the demands for research, teaching, and learning, activities of the faculty members, the Ph. D. students and other students of the school.

- Responsible for deploying and administrating the business information systems used by the faculty members and students for their research, teaching, and learning; these systems include the business intelligence (BI) system as SAS servers, Enterprise Resource Planning (ERP) system as SAP R/3 SaaS (Software as a Service) and SAP Business One, Statistical Analysis as SAS, GAUSS, STATA, MiniTAB, etc.

- Responsible for planning, hiring, and supervising computer labs staffs.

Nortel Networks Inc. - Richardson, Texas
05/2002 - 05/2005
Lead Software Designer and System Designer

Achievements

- Successfully designed, developed, design tested, and delivered multiple subsystems of multimedia gateways.

- Successfully completed all the assigned projects as scheduled, within budget, with scalable design, with a reliable load of code, and easy for maintenance.

Responsibilities

- Responsible for authoring the system requirements based on the latest approved standards related to the product.

- Responsible for designing, developing, and testing the Base-Module of the Multimedia Applications Server working with SIP Stack Servers.

- Responsible for authoring high-level design (HLD) and the detailed design of the Layer-2 Relay layer that handles the communication between the M2UA (MTP2 User Adaptor) layer and the SAAL (Signaling ATM Adaptor Layer) layer for the Media Gateway (VoIP).

- Responsible for designing, developing, and testing the Media Gateway Integrity Audits System of the Media Gateway.

Latus Lightworks Inc. - Richardson, Texas
11/2000 - 05/2002
Lead System Designer
Achievements

- Successfully designed and developed the Transmission Management Embedded System of the WaveBand 5000, an Optical DWDM (Dense Wavelength Division Multiplexing) system that could carry up to 1024 beams in the same optical fiber.

Responsibilities
- Responsible for authoring the system requirements for the Transmission Management Embedded System of the WaveBand 5000 product: an Optical DWDM System for use in long-haul terrestrial transmission for applications referred to as long-haul backbone networks.

- Responsible for writing the high-level design (HLD) and detailed design (DD), designing and developing the Transmission Management Embedded Software System. This

embedded software system manages the end-to-end transmission of optical signals, both DWDM signals and client SONET/SDH signals, through the Optical Transport Networks handled by the WaveBand 5000 systems, which include all categories of Network Elements: Terminal Sites, In-Line Sites, and OADM Sites. The design and development is based on the latest approved standards specified in ITU-T G.872, ITU-T G.709, Telcordia GR-2918-CORE, Telcordia GR-253-CORE, etc.

- Responsible for the design of the inter-communication between the Transmission Management Embedded Software System and TL-1 Agents, LEI (Latus Element Interface) Sessions, and EMS/NMS Agents. The inter-communication is done via IDL (CORBA) interface standards.

Nortel Networks Inc. - Richardson, Texas
12/1995 - 11/2000
Senior Software Designer

Achievements

- Successfully designed the Transaction Description Language and created the Transaction Description Language Parser. The language and the parser were officially embedded in the Nortel MSC GSM Billing System that was a default module available in all Nortel commercial GSM switches for telecommunication carriers.

- Being a member of a very small team (3 software engineers) that successfully created a prototype of wireless (CDMA) phone service over IP - the first in the industry then.

- Successfully designed and developed a MAP (GSM) over IP subsystem for the Signaling System of GPRS networks (Nortel) during an extremely tight schedule. The product is greatly robust, reliable, and scalable.

Responsibilities

- Responsible for authoring the high-level design (HLD) for Quality of Service (QoS) features of GPRS networks, design and develop features of Quality of Services (QoS) of GPRS and UMTS Networks, and design a queue system for traffic shaping of GPRS and UMTS.

- Responsible for authoring a Nortel's proprietary protocol that facilitates the traffic between SGSN of GPRS networks and HLR via SS7-IP-Gateway so that IP signaling traffic can access and travel through SS7 networks.

- Responsible for designing and development of a software system that monitors the operations of a cell site of TDMA Fixed Wireless Systems

Public Services

Supporting Disabled Students in Vietnam – Ho Chi Minh City, Vietnam
Coordinator, Advisor, and Instructor

- Coordinating activities to help disabled students in their study (Grades: 6 – 12)
- Providing advising services about academic affairs and career to students
- Providing tutoring courses in math, science, and English
- Helping students to prepare for exams