HUYEN N. NGUYEN

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SUMMARY

I am a PhD Candidate in Computer Science with 4 years of experience in data visualization and visual analytics research. I develop novel interactive visualizations to enhance the understanding and insight of quantitative and qualitative data, including text analysis in educational domain. I aspire for a career where I can help people solve their problems using the intuitive nature of visualization and human-computer interaction.

EDUCATION

Texas Tech University, Lubbock, TX 08/2018 – present

Doctoral degree in Computer Science

- Research areas: Data Visualization and Visual Analytics
- Award: Department of Computer Science Scholarship recipient, *$5000*

Hanoi University of Science and Technology, Hanoi, Vietnam 09/2013 – 06/2018

Bachelor of Science in Information Systems, 5-year Engineer Program

- Thesis: "Multi-label Image Classification on a Real-life Photo Gallery with MobileNetv2"
- Honors: Temasek Foundation Singapore Full Scholarship for Specialists' Community Action & Leadership Exchange (Top **0.5%**), Excellence Scholarship (Top **1%**) in recognition of outstanding academic performance

FUNDED GRANT

NASA, administered by Gordon Research Conferences: **Visionary Research Grant**, Visualizing Qualitative Data for Science and Education, *$10,000*, with Caleb M. Trujillo, University of Washington Bothell; Kathleen Jeffery, University of New Hampshire and Kevin Wee, Purdue University.

HONORS AND AWARDS

- **IEEE Visual Analytics Science and Technology (VAST) Challenge**, *Honorable Mention* for Detailed Analysis of Patterns of Misclassification, 2020 [demo, video]
- Texas Tech University Whitacre College of Engineering Scholarship: 2018 and 2019
- Temasek Foundation Singapore Full Scholarship, Specialists' Community Action & Leadership: 2015
- Vietnam National Physics Olympiad, Honorable Mention: 2013

PUBLICATIONS

2021

12. Nguyen, V.T., **Nguyen, H. N.**, and Dang, T. (2021). JobNet: 2D and 3D Visualization for Temporal and Structural Association in HPC System, In *Advances in Visual Computing. ISVC 2021. Lecture Notes in Computer Science, vol 13017*. Springer, Cham. doi: 10.1007/978-3-030-90439-5_17.

11. **Nguyen, H. N.**, Trujillo, C. M., Wee, K., & Bowe, K. A. (2021). Interactive Qualitative Data Visualization for Educational Assessment. In *The 12th International Conference on Advances in Information Technology* (pp. 1-9). doi: 10.1145/3468784.3469851.

10. Dang, T., **Nguyen, H. N.**, & Nguyen, N. V. (2021). VixLSTM: Visual Explainable LSTM for Multivariate Time Series. In *The 12th International Conference on Advances in Information Technology* (pp. 1-5). doi: 10.1145/3468784.3471603.

2020

9. **Nguyen, H. N.**, Nguyen, V.T., and Dang, T. (2020). Interface Design for HCI Classroom: From Learners' Perspective. In: Bebis G. et al. (eds) Advances in Visual Computing. *ISVC 2020. Lecture Notes in Computer Science, vol 12510*. Springer, Cham. doi: 10.1007/978-3-030-64559-5_43.

8. Dang, T., Pham, V., **Nguyen, H. N.**, and Nguyen, N. V. (2020). AgasedViz: Visualizing Groundwater Availability of Ogallala Aquifer, USA. *Environmental Earth Sciences*, 79(5), 1-12. doi: 10.1007/s12665-020-8851-6.

7. Dang, T., Van, H., **Nguyen, H. N.**, Pham, V., and Hewett, R. (2020). DeepVix: Explaining Long Short-Term Memory Network with High Dimensional Time Series Data. *Proceedings of the 11th International Conference on Advances in Information Technology (IAIT2020)*, 1-10. doi: 10.1145/3406601.3406643.

2019

6. Dang, T., **Nguyen, H. N.**, and Pham, V. (2019). WordStream: Interactive Visualization for Topic Evolution. In Johansson, J.,Sadlo, F., and Marai, G. E., editors, *EuroVis 2019 - Short Papers*. The Eurographics Association. doi: 10.2312/evs.20191178.

5. **Nguyen, H. N**. and Dang, T. (2019). EQSA: Earthquake Situational Analytics from Social Media, *IEEE Conference on Visual Analytics Science and Technology (VAST),* Vancouver, BC, Canada, 142-143. doi: 10.1109/VAST47406.2019.8986947.

4. Le, D., Pham, V., **Nguyen, H. N.**, and Dang, T. (2019). Visualization and Explainable Machine Learning for Efficient Manufacturing and System Operations. *Smart and Sustainable Manufacturing Systems*, 3(2), 127-147. doi: 10.1520/SSMS20190029.

3. Van, H., **Nguyen, H. N.**, Hewett, R., and Dang, T. (2019). HackerNets: Visualizing Media Conversations on Internet of Things, Big Data, and Cybersecurity. *BigEACPS at IEEE International Conference on Big Data (Big Data)*, 3293-3302. doi: 10.1109/BigData47090.2019.9006417.

2018

2. **Nguyen, H. N.**, Nguyen, V. T., Nguyen, N. V., Pham, V., and Dang, T. (2018). IotNegViz: An interactive tool for visualizing negative aspects of IoT. *BigEACPS at IEEE International Conference on Big Data (BigData)*, 4565–4568. doi: 10.1109/BigData.2018.8621984.

1. Nguyen, M. T., **Nguyen, H. N.**, and Teague, K. A. (2018). Wavelet-based Energy Efficient Data Collection Algorithm in Wireless Sensor Networks. *ICSES Transactions on Computer Networks and Communications (ITCNC)*, 4(2), 3-10.

WORK EXPERIENCE

Research Assistant, Texas Tech University 09/2018 – present

Ph.D. Researcher in Data Visualization, Interactive Data Visualization Lab

- Developed *WordStream*, a novel visualization for topic evolution in text analysis. Processed raw data from 10,000 to 75,000 records per dataset, built an interactive web-based application and optimized the algorithm for faster rendering by 300%
- Managed technical side for an interdisciplinary research team of 4, funded *$10,000* by NASA. Augmented *WordStream* to apply in the new domain of educational assessments of a 10-week study
- Contributed to writing a grant proposal for an intelligent visual framework for analyzing chemical measurement data, projected to save 25% data analysis time
- Collaborated with High Plains Underground Water scientists to analyze data over 21 years, resulting in a monitoring dashboard to detect groundwater decline and depletion
- Investigated 2D and 3D representations, collaborated with Dell Inc. on High-Performance Computing systems with nine health metrics, supporting real-time monitoring and outlier detection for 2,000 records

Teaching Assistant, Texas Tech University 09/2019 – present

Department of Computer Science

- Fall 2021 and Spring 2022: **Primary instructor** for CS2413 Data Structures Lab session.
- **Mentor** to student under Tech Intrapreneurship Program (TIP) - Scholarships in STEM (**S-STEM**), sponsored by National Science Foundation (**NSF**) and Texas Instruments (**TI**).

• TA to Graduate courses: Intelligent Systems (41 students), Logic for Comp. Scientists (41 students), Undergraduate courses: Intro to Artificial Intelligence (50 students), Software Engineering II (65 students)
• Helped students with coursework inquiries, graded and updated assignments and programming source codes
• Developed and presented tutorials on modeling, analysis with the User Requirements Notation, jUCMNav

Research Student Assistant, Hanoi University of Science and Technology 10/2015 – 06/2018
Data Science Lab, Hanoi, Vietnam
• Studied on research about machine learning models: Techniques and applications.
• Evaluated different models for solving computer vision problems.
• Implemented Convolutional Neural Networks for object detection task with TensorFlow library.

Intern, VC Corp 06/2016 – 08/2016
Vietnam Communications Corporation, Hanoi, Vietnam
• Implemented Hadoop and Apache Spark processing frameworks to perform distributed computing in large clusters.
• Contributed to anomaly detection project on system metadata.
• Implemented MapReduce framework to solve the file storage issues using Maven project in Java.

SKILLS

Programming: JavaScript, Python, C++, Java, R, ReactJS, Answer Set Programming (ASP)
Libraries: D3js, OpenCV, TensorFlow, spaCy
Software: Tableau, Dedoose, MATLAB
Research-related: Proposal writing, Interviewing, Conducting user studies

POSTER PRESENTATIONS

1. **Nguyen, H.** and Dang, T., (2019). WordStream: An Interactive Visualization for Topic Evolution. Poster presented at the Visualization in Science and Education, Gordon Research Conference. Lewiston, ME.
2. **Nguyen, H.** and Dang, T., (2019). Interactive Visualization for Earthquake Analytics from Social Media Data. Poster presented at the Scientific Computing meets Machine Learning and Life Sciences Workshop, Texas Tech University, Lubbock, TX.

TALKS

1. **Nguyen, H.** (2020). Data Visualization and Applications. Talk presented at Advanced Wireless Communication Networks (AWCN) Laboratory, Thai Nguyen University of Technology, Thai Nguyen, Vietnam.
2. Dang, T. and **Nguyen, H**. (2019). Visual analytics and Virtual Reality. Talk presented at The Cognition & Cognitive Neuroscience area of Experimental Psychology, Department of Psychological Sciences, Texas Tech University, Lubbock, TX.

CERTIFICATES

1. **International Teaching Assistant**, Texas Tech University, by The ITA Workshop, Summer 2019.
2. **Human Subject Training**: TTU Social and Behavioral Research, by Human Research Protection Program, Texas Tech University, 2019.
3. **Certificate of Achievement**, by Committee on Ethnic Minority Affairs, Vietnam, for outstanding achievement in National Olympiad and University Entrance Examination, 2013.