

Huyen N. Nguyen

Ph.D. in Computer Science • Interactive visualization systems and analysis
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EDUCATION

- 2018 – 2023 **Ph.D. in Computer Science** Lubbock, Texas
Texas Tech University
Dissertation: *Interactive Visualization and Event Detection in time-series Data.*
- 2013 – 2018 **B.S. in Information Systems, 5-year Engineer Program** Hanoi, Vietnam
Hanoi University of Science and Technology
Honors: Temasek Foundation Singapore Scholarship (Top 0.5%), Excellence Scholarship (Top 1%) for outstanding academic performance.






RESEARCH EXPERIENCE

- Sept. 2018 – Aug. 2023 **Texas Tech University** Lubbock, Texas
Ph.D. Researcher
 - Formulated visualization methods to identify events and detect outliers in time-series data and applied the abstract model in high-performance monitoring.
 - Developed interactive web-based visualizations for various domains, including bio-medical, qualitative, social media, and cybersecurity data.
- June 2022 – Aug. 2022 **University of New Hampshire** Durham, New Hampshire
Research Consultant
 - Developed concepts and designs to scale WordStream text visualization prototype to a practical application for the vast users
 - Programmed the interactive system and evaluated its usefulness with end-users
- Sept. 2018 – May 2019 **Texas Tech University** Lubbock, Texas
Research Assistant
 - Developed WordStream, a novel visual tool to visualize topic evolution in text data from 10,000 to 75,000 records per dataset; optimized the algorithm for faster rendering by 300%
 - Collaborated with soil scientists to analyze data over 21 years of underground water; contributed to a monitoring dashboard to detect groundwater decline and depletion
- June 2016 – Aug. 2016 **Vietnam Communications Corp. (Top 5 Vietnam Tech Co.)** Hanoi, Vietnam
Big Data Engineer Intern

Applied Hadoop and Apache Spark processing frameworks to perform distributed computing in large clusters. Implemented MapReduce framework to solve the file storage issues using Maven project in Java

PUBLICATIONS

- 2022 **14. MalView: Interactive Visual Analytics for Comprehending Malware Behavior** H. N. Nguyen, F. Abri, V. Pham, M. Chatterjee, A. S. Namin, T. Dang, *IEEE Access*.
🔗 Open Access. DOI: [10.1109/ACCESS.2022.3207782](https://doi.org/10.1109/ACCESS.2022.3207782)
- 2022 **13. Modie Viewer: Protein Beasts and How to View Them** H. N. Nguyen, C. Trujillo, T. Dang. *Bio+MedVis Challenges @ IEEE VIS 2022*.
🔗 Preprint
- 2022 **12. WordStream Maker: A Lightweight End-to-end Visualization Platform for Qualitative Time-series Data** H. N. Nguyen, T. Dang, K. A. Bowe. *NLVIZ: Exploring Research Opportunities for Natural Language, Text, and Data Visualization, IEEE VIS 2022*.
🔗 PDF
- 2021 **11. Interactive Qualitative Data Visualization for Educational Assessment** H. N. Nguyen, C. M. Trujillo, K. Wee, K. A. Bowe. *International Conference on Advances in Information Technology*.
🔗 Open Access. DOI: [10.1145/3468784.3469851](https://doi.org/10.1145/3468784.3469851)
- 2021 **10. JobNet: 2D and 3D Visualization for Temporal and Structural Association in High-Performance Computing System** N. VT. Nguyen, H. N. Nguyen, J. Hass, T. Dang. *International Symposium on Visual Computing*.
🔗 DOI: [10.1007/978-3-030-90439-5_17](https://doi.org/10.1007/978-3-030-90439-5_17)
- 2021 **9. VisMCA: A Visual Analytics System for Misclassification Correction and Analysis** H. N. Nguyen, J. Gonzalez, J. Guo, N. VT. Nguyen, T. Dang. *VAST Challenge 2020, Mini-Challenge 2 Award: Honorable Mention for Detailed Analysis of Patterns of Misclassification*.
🔗 PDF
- 2021 **8. VixLSTM: Visual Explainable LSTM for Multivariate Time Series** T. Dang, H. N. Nguyen, N. VT. Nguyen. *International Conference on Advances in Information Technology*.
🔗 DOI: [10.1145/3468784.3471603](https://doi.org/10.1145/3468784.3471603)
- 2020 **7. Interface design for HCI classroom: from learners' perspective** H. N. Nguyen, V. T. Nguyen, T. Dang *International Symposium on Visual Computing*.
🔗 DOI: [10.1007/978-3-030-64559-5_43](https://doi.org/10.1007/978-3-030-64559-5_43)
- 2020 **6. AgasedViz: Visualizing groundwater availability of Ogallala Aquifer, USA** T. Dang, V. Pham, H. N. Nguyen, N. VT. Nguyen. *Environmental Earth Sciences*.
🔗 DOI: [10.1007/s12665-020-8851-6](https://doi.org/10.1007/s12665-020-8851-6)

- 2020 **5. *DeepVix: Explaining long short-term memory network with high dimensional time series data*** T. Dang, H. Van, H. N. Nguyen, V. Pham, R Hewett. *International Conference on Advances in Information Technology*.
 DOI: [10.1145/3406601.3406643](https://doi.org/10.1145/3406601.3406643)
- 2019 **4. *WordStream: Interactive Visualization for Topic Evolution*** T. Dang, H. N. Nguyen, V. Pham. *EuroVis*.
 DOI: [10.2312/evs.20191178](https://doi.org/10.2312/evs.20191178)
- 2019 **3. *EQSA: Earthquake Situational Analytics from Social Media*** H. N. Nguyen, T. Dang. *IEEE Conference on Visual Analytics Science and Technology*.
 DOI: [10.1109/VAST47406.2019.8986947](https://doi.org/10.1109/VAST47406.2019.8986947)
- 2019 **2. *Visualization and explainable machine learning for efficient manufacturing and system operations*** D. D. Le, V. Pham, H. N. Nguyen, T. Dang. *Smart and Sustainable Manufacturing Systems, ASTM International*.
 DOI: [10.1520/SSMS20190029](https://doi.org/10.1520/SSMS20190029)
- 2019 **1. *HackerNets: Visualizing Media Conversations on Internet of Things, Big Data, and Cybersecurity*** H. Van, H. N. Nguyen, R. Hewett, T. Dang. *IEEE International Conference on Big Data*.
 DOI: [10.1109/BigData47090.2019.9006417](https://doi.org/10.1109/BigData47090.2019.9006417)

TEACHING EXPERIENCE

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| Fall 2021 – Present | Instructor, CS 2413: Data Structures Lab Texas Tech University
Organized lab sessions; designed and graded weekly programming assignments for 70-140 students. Delivered lectures as a parallel part of the course. |
| Jan 2023 | Guest Lecture, Advanced Data Visualization University of Washington Bothell
Delivered a lecture on “Interaction in Visualization” and hold a discussion on interactivity and accessibility in creating visualization with 15 students. |
| Fall 2021 – Spring 2022 | Mentor, Tech Intrapreneurship Program Texas Tech University
<i>Scholarships in STEM, by the NSF and Texas Instruments</i>
Hold weekly discussions on professional development. Mentored a student on transferable skills in programming and engineering practice. |
| Fall 2019 | Teaching Assistant, CS 4365: Software Engineering II, CS 5368: Intelligent Systems/Intro Artificial Intelligence, CS 5384: Logic for Computer Scientists
Graded assignments for 200 students; assisted with coursework questions. Presented tutorials on modeling and analysis with the User Requirements Notation. |

GRANTS AND AWARDS

- 2020 **NASA**, administered by Gordon Research Conferences: Visionary Research Grant, Award #17-TWSC17-0055, Visualizing Qualitative Data for Science and Education, \$10,000, (with Kathleen Bowe, University of New Hampshire, Caleb Trujillo, University of Washington Bothell, and Kevin Wee, Purdue University)
- 2020 **IEEE VAST Challenge, Honorable Mention**, IEEE Visual Analytics Science and Technology, for Detailed Analysis of Patterns of Misclassification.
- 2017 **Excellence Scholarship**, Hanoi University of Science and Technology, Vietnam, (top 1%) in recognition of outstanding academic performance.
- 2016 **Full Scholarship**, Temasek Foundation Singapore, (top 0.5%) for Community Action & Leadership Exchange.

SERVICES

- May 2023 **Reviewer**
IEEE Conference on Visualization (IEEE VIS).
- Jan. 2022 – Present **Graduate Student Affiliate, STEM Center for Outreach, Research & Education**
Introduced Virtual Reality (VR) to 20 Middle school students, instructed and helped them use VR tools to create models from their imagination.
- Mar. 2022 **Reviewer, Undergraduate Research Conference**
Reviewed five (5) research presentations by undergraduate students from a variety of disciplines. Provided feedback and recognition of their achievements.
- Feb. 2022 **Judge, Graduate School Poster Competition**
Provided feedback and scores to five (5) poster presentations from multiple research disciplines. Suggested improvements where applicable.
- May – June 2021 **Student Recruiting Campaign, Dept. of Computer Science**
Connected with 200+ prospective undergraduate students. Provided resources regarding scholarships, study plans, and financial aid.

TALKS AND PRESENTATIONS

- 2022 Modie Viewer: Protein Beasts and How to View Them Oklahoma City, Oklahoma
Bio+MedVis Challenge @ IEEE VIS 2022.
- 2020 Data Visualization and Applications Thai Nguyen, Vietnam
The Advanced Wireless Communication Networks (AWCN) Laboratory, Thai Nguyen University of Technology.
- 2019 Visual Analytics and Virtual Reality Lubbock, Texas
The Cognition & Cognitive Neuroscience Area of Experimental Psychology, Department of Psychological Sciences, Texas Tech University.

- 2019 WordStream: An Interactive Visualization for Topic Evolution Lewiston, Maine
Poster presentation at the Conference of Visualization in Science and Education, Gordon Research Conference.
- 2019 Interactive Visualization for Earthquake Analytics from Social Lubbock, Texas
Media Data
Poster presentation at the Scientific Computing meets Machine Learning and Life Sciences Workshop, Texas Tech University.

SKILLS

Programming languages

JavaScript, Python, R, C, C++

- D3.js, HTML, and CSS for building interactive visualizations on the web.
- spaCy for natural language processing; OpenCV for image processing.

Software

Git, MATLAB, \LaTeX , Jekyll (Markdown, Liquid) for building static websites.

Research

Grant proposal writing, interviewing and conducting user studies.

CERTIFICATES

- 2022 Responsible Scholarship for Engineers
CITI Program, Credential ID 36664877
- 2019 International Teaching Assistant
The ITA Workshop, Texas Tech University.
- 2019 Human Subject Training, TTU Social and Behavioral Research
Human Research Protection Program, Texas Tech University.