

Huyen N. Nguyen

Postdoctoral Research Fellow • Data Visualization for Biomedical Informatics
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POSITIONS






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| Sept. 2023 – Present | Harvard Medical School
<i>Postdoctoral Research Fellow in Biomedical Informatics</i>
Developing visualization systems to help scientists efficiently explore and interact with genomics and nucleomics data, supporting sense-making and decision-making in the biomedical domain. | Boston, Massachusetts |
| June 2022 – Aug. 2022 | University of New Hampshire
<i>Research Consultant</i> <ul style="list-style-type: none">• Created a lightweight end-to-end visualization platform for qualitative time series, pipelining data wrangling, natural language processing, and visualization.• Designed and implemented the concept as an open-source application to allow users to create WordStream visualization without programming experience | Durham, New Hampshire |
| Sept. 2018 – Aug. 2023 | Texas Tech University
<i>Ph.D. Researcher</i> <ul style="list-style-type: none">• Formulated visualization methods to identify events and detect outliers in time-series data and applied the abstract model in high-performance monitoring.• 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 | Lubbock, Texas |
| June 2016 – Aug. 2016 | Vietnam Communications Corp. (Top 5 Vietnam Tech Co.)
<i>Big Data Engineer Intern</i>
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 | Hanoi, Vietnam |

EDUCATION

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

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.

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

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, L^AT_EX, Jekyll (Markdown, Liquid) for building static websites.

Research

Grant proposal writing, interviewing and conducting user studies.

CERTIFICATES

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