# Xuxin Tang

📞 +1 8572302402  ✉ xuxintang@vt.edu  in LinkedIn  ⌂ Github

## Summary

Ph.D. student in Computer Science at Virginia Tech, focusing on Information Visualization, Immersive Analytics, and Human-AI interaction. Engineer with years of industry experience in full-stack development, big data analysis, machine learning, and recommendation system.

## Education

**Ph.D. in Computer Science**                                              **2022 – Now**

*Virginia Polytechnic Institute and State University, Blacksburg, United States*                with **Chris North**

**M.S. (Thesis-based) in Software Engineering**                            **2015 – 2018**

*Wuhan University, Wuhan, China*                                with **Fan Zhang** and **Zhijiang Li**

**B.S. in Engineering**                                                    **2011 – 2015**

*Wuhan University, Wuhan, China*

## Work Experience

**Graduate Research Assistant**                                            **Aug 2023 – Now**

*Virginia Tech, advised by Dr. **Chris North***                        *Blacksburg, VA, United States*

- Project leader. Propose a human-AI sensemaking framework that enables seamless collaboration between humans and AI.
- Design and develop a human-AI sensemaking system by integrating interactive visual workspaces with advanced LLMs.
- Evaluate the sensemaking system by conducting a user study with both quantitative and qualitative analyses. Perform expert interviews and case studies to assess the system's generalizability.

**Visiting PhD Student**                                                   **Jun 2023 – Aug 2023**

*MIT CSAIL, advised by Dr. **Stefanie Mueller***                       *Cambridge, MA, United States*

- Main contributor for the Imprinto project: developed personalized and flexible augmentations for printable objects using unobtrusive IR marks.
- Conducted a user study to differentiate the overlap between human and machine perception of IR marks under given lighting conditions.
- Processed and enhanced images of IR marks captured by a NIR camera through ResNet.
- Brainstormed, designed, and evaluated fast and flexible applications based on IR marks.

**Student Researcher**                                                     **Aug 2022 – Aug 2023**

*Virginia Tech, advised by Dr. **Yalong Yang***                        *Blacksburg, VA, United States*

- Project leader. Incorporating voice interactions into 3D graph sensemaking tasks to enhance spatial computing.
- Designed and developed a VR application for visualizing citation-based networks and facilitating simulated voice interactions.

**Machine Learning Engineer**                                             **July 2019 – Mar. 2021**

*YY Live, Joyy Inc.*                                                       *Beijing, China*

- Designed and implemented scalable machine learning models to enhance video recommendation algorithms, driving improvements in key user metrics such as new user retention, engagement rates, and viewing duration by employing techniques like collaborative filtering, XgBoost, dual-tower CNN and GraphSAGE.
- Conducted rigorous data analysis on large datasets (over 50 TB) to understand user behavior and preferences. Optimized existing recommendation algorithms by incorporating user feedback and real-time interaction data.
- Led the setup and analysis of A/B tests to evaluate the performance of various recommendation algorithms, including defining key metrics, interpreting outcomes, and making data-driven decisions to optimize the recommendation system.

**Software Development Engineer**                                          **July 2018 – May 2019**

*Oracle China R & D Center*                                                *Beijing, China*

- Full-stack development of dashboards for Oracle's SaaS cloud computing platform, enabling customers with a real-time data visualization interface for seamless monitoring and management of computing resources.

## Competition Experience

**Kaggle: Jigsaw Unintended Bias in Toxicity Classification**    **May 2019 – Jun. 2019**

*Leader, primary Contributor*    *Top 10% out of 3030 teams, bronze medal*

- Developed an NLP-based solution to identify toxicity in diverse online conversations, focusing on reducing unintended bias related to identity mentions.
- Set up and tested advanced NLP models, including BI-LSTM, BERT, GPT-2, and XLNet, ultimately selecting a blended approach of BI-LSTM training and BERT fine-tuning based on performance metrics and error analysis.

**Ali Tianchi: Intelligent Traffic Forecast Challenge**    **May 2017 – Aug. 2017**

*Primary Contributor*    *Top 3% out of 1716 teams*

- Developed a time-series prediction model to estimate the average travel time between 7 AM to 8 AM in July, utilizing historical data of daily travel times for each vehicle across 132 roads from March to May.
- Utilized LSTM for prediction, meticulously refining parameters such as encoder and decoder layers, hidden units, batch size, and dropout for optimal model performance.

## Publications

- **Xuxin Tang**, Eric Krokos, Can Liu, Kylie Davidson, Kirsten Whitley, Naren Ramakrishnan, Chris North. "Steering LLM Summarization with Visual Workspaces for Sensemaking." *IEEE@NLVIZ Workshop: Exploring Research Opportunities for Natural Language, Text, and Data Visualization* (IEEE@NLVIZ 2024).

- Fan Zhang[1], **Xuxin Tang**[1], Xiu Li, S.U. Khan, and Zhijiang Li. Quantifying cloud elasticity with container-based autoscaling[J]. Future Generation Computer Systems, 2019, 98: 672-681. (Co-first author with Dr. Fan Zhang as my advisor, contributing 40% of the newly added content.)

- **Xuxin Tang**[1], Fan Zhang[1], Li X, S.U. Khan, and Zhijiang Li. "Quantifying Cloud Elasticity with Container-Based Autoscaling." 2017 IEEE 15th Intl Conf on Dependable, Autonomic and Secure Computing, 15th Intl Conf on Pervasive Intelligence and Computing, 3rd Intl Conf on Big Data Intelligence and Computing and Cyber Science and Technology Congress (DASC/PiCom/DataCom/CyberSciTech). IEEE, 2017. (Selected as special issue and extended)

- **Xuxin Tang**, Zhijiang Li, Yuhang Chen. "A Night Image Enhancement Algorithm Based on Guided Filtering." China Academic Conference on Printing & Packaging and Media Technology. Springer, Singapore, 2016.

## Professional Service

**Paper Reviewing**: VIS 2024

## Technical Skills

**Programming languages**: Python, Java, C++, C#, C, SQL, Hive, HTML, CSS, JavaScript, Spark
**Frameworks and Toolkits**: Hadoop, Docker, Kubernetes, Kafka, Git, Linux/Unit, DC/OS
**Machine Learning and AI**: Large Language Modeling(LLM), Transformers, LSTM, CNN, Xgboost
**Libraries**: Pytorch, Tensorflow, Keras, OpenCV, Scipy, sklearn, NLTK, Pandas, Numpy, Matplotlib

## Honors & Awards

- Full Scholarship for Graduate Students of Wuhan University, three times.    2015-2017

- Graduate Scholarship of Wuhan University, two times.    2015-2017

- Outstanding Student of Wuhan University, two times.    2013-2015

- Outstanding Student Leaders of Wuhan University.    2013

- $1^st$ Prize of Summer Social Practice of Wuhan University    2012