

Ke Xu

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Education

- Sept 2015 **Ph.D. in Electronic and Computer Engineering**
- Aug 2019 **Hong Kong University of Science and Technology**, Hong Kong, China
- Supervisor: [Prof. Huamin Qu](#)
 - Thesis: Visual Anomaly Detection and Its Applications.
- Sept 2011 **B.S. in Electronic Science and Technology**
- Jul 2015 **Nanjing University**, Nanjing, China
- Ranking: **1/217**.
 - Thesis: FPGA-based Design of FFT & FIR.

Research Interests

Visual Analytics, Anomaly Detection, Explainable AI, Time-series Analytics, Healthcare

Research / Work Experience

- Jan 2020 **New York University**, New York, U.S.
- Present **Research Associate (advised by [Prof. Claudio Silva](#) & [Prof. Enrico Bertini](#))**, VIDA Lab
- Lead a survey on the use of visualization for **interpreting machine learning model**, a joint project collaborated with Capital One.
 - Developed mTSeer, a visual analytic system for interactive and steerable exploration and evaluation of **multivariate time-series forecasting models** with Financial and News data.
- May 2019
- Aug 2019 **Harvard University**, Boston, U.S.
Visiting Scholar (advised by [Prof. Hanspeter Pfister](#)), Visual Computing Group
- Designed and built the visualization part of a biomedical project for improving embryo selection in Assisted Reproductive Technologies, collaborated with Harvard Medical School.
- Jan 2019
- May 2019 **Microsoft Research Asia**, Beijing, China
Research Intern (advised [Dr. Yun Wang](#)), Software Analytics Group
- Developed **CloudDet**, an interactive system for visually analyzing anomalous performances in large **cloud computing** system.
 - Cooperated in designing **DataShot**, a visualization system for **automatically generate the poster** with the sheet data.
- Feb 2017
- Sept 2017 **Tongji University**, Shanghai, China
Visiting Scholar (advised [Prof. Nan Cao](#)), iDVx Lab
- Designed **ECGLens**, a visualization tool for **arrhythmia detection** with large scale ECG data.
 - Developed **EventThread**, a visual analytics system for **summarizing event sequence data**.

The Hong Kong University of Science and Technology, Hong Kong, China

Jun 2016 Graduate Student, HKUST VIS Lab

- Dec 2019 • Designed **EnsembleLens**, a visual system to evaluate different anomaly detection algorithms based on **ensemble analysis**.
- Design and build a visualization project for analyzing Hong Kong weather, elderly wandering and asset management, collaborated with LSCM Hong Kong.

McGill University, Montreal, Canada

Jun 2014 Summer Intern (advised by Prof. Kirk H. Bevan), Department of Material Engineering

- Sept 2014 • Provided a model to predict the screening-limited response of nanobiosensors.

Nanjing University, Nanjing, China

Jun 2014 Project Leader (advised by Prof. Xinggan Zhang)

- Sept 2014 • Lead “Microphone Array Acoustic Localization and Speech Enhancement”, which is a National Innovation Training Program.

Publications

[C6, J4] **Ke Xu**, Yun Wang, Leni Yang, Yifang Wang, Bo Qiao, Qin Si, Yong Xu, Haidong Zhang, Huamin Qu.

CloudDet: Interactive Visual Analysis of Anomalous Performances in Cloud Computing Systems.

IEEE Transactions on Visualization and Computer Graphics (VAST'19: Proceedings of the IEEE Visual Analytics Science and Technology), doi: 10.1109/TVCG.2019.2934, IEEE, 2019. [24.7% acceptance rate]

[C5, J3] Yun Wang, Zhida Sun, Haidong Zhang, Weiwei Cui, **Ke Xu**, Xiaojuan Ma, Dongmei Zhang.

DataShot: Automatic Generation of Fact Sheet from Tabular Data.

IEEE Transactions on Visualization and Computer Graphics (InfoVis'19: Proceedings of the IEEE Information Visualization), doi: 10.1109/TVCG.2019.2934398, IEEE, 2019. [25.8% acceptance rate]

[C4] Xing Mu*, **Ke Xu***, Qing Chen, Fan Du, Yun Wang, Huamin Qu.

MOOCad: Visual Analysis of Anomalous Learning Activities in Massive Open Online Courses.

EuroVis'19: Proceedings of The Eurographics Conference on Visualization, pages: 91-95, doi: 10.2312/evs.20191176, EuroVis, 2019.

[C3, J2] **Ke Xu**, Meng Xia, Xing Mu, Yun Wang, Nan Cao.

EnsembleLens: Ensemble-based Visual Exploration of Anomaly Detection Algorithms with Multidimensional Data.

IEEE Transactions on Visualization and Computer Graphics (VAST'18: Proceedings of the IEEE Visual Analytics Science and Technology), doi: 10.1109/TVCG.2018.2864825, IEEE, 2018. [25.6% acceptance rate]

[C2] **Ke Xu**, Shunan Guo, Nan Cao, David Gotz, Aiwen Xu, Huamin Qu, Zhenjie Yao, Yixin Chen.

ECGLens: Interactive Visual Exploration of Large-scale ECG Data for Arrhythmia Detection.

CHI'18: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, p. 663, doi: 10.1145/3173574.3174237, ACM, 2018. (***Best Paper Honorable Mention**). [top 5% of all submissions]

[C1, J1] Shunan Guo, **Ke Xu**, Rongwen Zhao, David Gotz, Hongyuan Zha, Nan Cao.

EventThread: Visual Summarization and Stage Analysis of Event Sequence Data.

IEEE Transactions on Visualization and Computer Graphics (VAST'17: Proceedings of the IEEE Visual Analytics Science and Technology), doi: 10.1109/TVCG.2017.2745320, IEEE, 2017.

Submitted

Ke Xu, Jun Yuan, Yifang Wang, Claudio Silva, Enrico Bertini.

mTSeer: Interactive Visual Exploration of Models on Multivariate Time-series Forecast.

VAST 2020

Yifang Wang, Hongye Liang, Jiacheng Wang, **Ke Xu**, Xinhuan Shu, Cameron Campbell, Bijia Chen, Yingcai Wu, Huamin Qu.

CareerFlow: Interactive Visual Analytics System for Large-Scale Longitudinal Career Mobility Data.

VAST 2020.

Brian Barr, **Ke Xu**, Claudio Silva, Enrico Bertini, Robert Reilly, Jason Wittenbach.

Towards Ground Truth Explainability on Tabular Data.

ICML 2020 (WHI).

Honors and Awards

- 2019 **HKUST Oversea Research Award**
1,000 HKD per month for an overseas research.
- 2018 **Best Paper Honorable Mention Award, ACM CHI Conference**
For “ECGLens: Interactive Visual Exploration of Large Scale ECG Data for Arrhythmia Detection”.
- 2015-2019 **Postgraduate Studentship**
- 2015 **Excellent Student of Nanjing University**
- 2014 **First Prize of Red Sun Scholarship**
Awarded to **30** students in Nanjing University (**10000+**) each year.
- 2014 **Canadian Globalink Research Internship Award**
- 2013 **Baosteel Scholarship**
Awarded to **2 Sophomores** (3000+) in Nanjing University each year.
- 2012 **National Scholarship**
Only awarded once to students with top **1%** academic performance each year.

Invited Talks

- Mar 2020 **Visual Anomaly Detection and Its Applications with Temporal Data**
New York University, New York, U.S.
- Oct 2019 **CloudDet: Interactive Visual Analysis of Anomalous Performances in Cloud Computing Systems**
IEEE VIS Conference, Vancouver, Canada.

- Oct 2018 **EnsembleLens: Ensemble-based Visual Exploration of Anomaly Detection Algorithms with Multidimensional Data**
IEEE VIS Conference, Berlin, Germany.
- Apr 2018 **ECGLens: Interactive Visual Exploration of Large Scale ECG Data for Arrhythmia**
ACM CHI Conference, Montreal, Canada.

Teaching Experience

- 2019 Teaching Assistance, **Visualization: Connections with Machine Learning**, New York University
- 2017 Teaching Assistance, **Digital Circuit**, HKUST
- 2016 Teaching Assistance, **Signals and Systems**, HKUST
- 2018

Services

- 2020 **Program Committee** of IEEE VIS 2020
- 2018 **Reviewer** of IEEE Transactions on Visualization and Computer Graphics (TVCG)
- 2020
- Reviewer** of IEEE VIS (VAST, InfoVis, and SciVis) Conference
- 2019 **Reviewer** of ACM Conference on Human Factors in Computing Systems (CHI)
- 2019, 2020 **Reviewer** of The Visual Computer Journal (TVCI), Springer
- 2018, 2019 **Volunteer** of IEEE VIS (VAST, InfoVis, and SciVis) Conference