杜一

基本信息

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个人简介：

我目前就职于中国科学院计算机网络信息中心大数据技术与应用发展部，副研究员，硕士生导师。 博士毕业于中国科学院软件研究所，曾赴普渡大学 VACCINE 实验室交流访问。主要研究兴趣在**大规模时空数据可视分析、图数据挖掘（知识图谱）、人机交互技术**等。

截至目前，我主持及参与包括国家重点研发计划、国家自然科学基金项目、中国科学院科技创新工程在内的项目十余项，总经费超 3000 万元，在国内外知名期刊会议发表论文三十余篇，申请专利及软件权十余项，其中一项成果完成成果转移转化。主导及参与的大数据项目，为国家自然科学基金委、北京铜牛集团、伊利集团、中国气象局、中科院数学所、心理所等企事业单位提供服务。

工作、教育背景

2016.09 至今	**中国科学院计算机网络信息中心大数据研发实验室**	副研究员	北京
2015.09-2016.09	**普渡大学 电子与计算机工程学院**	访问学者	美国
2013.09-2016.09	**中国科学院计算机网络信息中心科学数据中心**	助理研究员	北京
2008.09-2013.09	**中国科学院软件研究所**	博士	北京
2004.08-2008.07	**山东大学计算机学院**	学士	济南

社会兼职

中国互联网协会青年专家

山东省青年创新人才协会首届会员、理事

中国计算机学会(CCF)人机交互专业委员会委员

中国图象图形学学会(CSIG)可视化与可视分析专委会委员

CCF、ACM、ACM SIGCHI CHINA Chapter 会员

IBM 认证专家 (DB2 数据库管理员, XML 技术)

部分科研项目情况

食源性疾病监测、溯源与预警技术研究(基于多源数据的食源性疾病实时预警技术体系研究)

国家重点研发计划 (课题负责人,2018-2021)

国家烟草专卖局烟草科研大数据（科研大数据融合管理引擎、分析处理系统、知识图谱工具等）

烟草科技重大专项（项目主要参与人,2018-2022）

国家自然科学基金大数据知识管理服务平台

国家自然科学基金委横向课题（技术负责人,2017-2019）

基于 Overview＋Detail 的交互式时空数据可视化方法研究

中国科学院知识创新工程(项目负责人)

模型驱动的大规模时空数据可视化开发方法研究

国家自然科学基金青年基金项目 (项目负责人)

城市综合评价技术研发与应用

中国科学院科技服务网络计划（STS) (项目参与人)

领域云系统虚拟管理技术与虚拟管理系统

中国科学院科研信息化项目(项目参与人)

面向非常规突发事件应急管理的大数据时空可视化服务研究

国家自然科学基金重大研究计划培育项目 (项目参与人)

部分学术论文

- 范俊君, 戴国忠, **杜一**, 刘正捷, 田丰, 智能时代人机交互的一些思考, 中国科学(信息科学),2018.
- **Yi Du**, Abish Malik, Lianke Zhou, Yuanchun Zhou, A Correlation Visual Analytics System for Air Quality, Chinese Journal of Electronics,2018. (SCI)
- **Yi Du**, Lei Ren, Yuanchun Zhou, Jianhui Li, Feng Tian, Guozhong Dai, Banded Choropleth Map, Personal and Ubiquitous Computing,2018. (SCI)
- 吕菲, 田丰, **杜一**, 陈凯翔, 侯文君, 戴国忠, 基于真实感层级框架的自然用户界面评估方法研究, 计算机辅助设计与图形学学报,2017,29(11):2076-2082.
- **Yi Du**, Cuixia Ma, Chao Wu, Xiaowei Xu, Yike Guo, Yuanchun Zhou, Jianhui Li, A Visual Analytics Approach for Station-based Air Quality Data, Sensors,17(1), 30, 2017. (SCI)
- Lei Ren, Yongchang Wei, Jin Cui, **Yi Du**, A Sliding Window based Multi-stage Clustering and Probabilistic Forecasting Approach for Large Multivariate Time Series Data, Journal of Statistical Computation and Simulation (GSCS),2017. (SCI)
- Wenjuan Cui, Pengfei Wang, Xin Chen, **Yi Du**, Danhuai Guo, Yuanchun Zhou, Jianhui Li, How to Use the Social Media Data in Assisting Restaurant Recommendation. Database Systems for Advanced Applications: DASFAA 2016.
- Wenjuan Cui, Pengfei Wang, Xin Chen, **Yi Du**, Danhuai Guo, Yuanchun Zhou, Jianhui Li, An Algorithm for Event Detection Based on Social Media Data, Neurocomputing,2017. (SCI)
- **杜一**, 郭旦怀, 陈昕, 任磊, 戴国忠, 一种模型驱动的可视化生成系统, 软件学报,27(5), pp. 1199-1211, 2016.
- **杜一**, 田丰, 戴国忠, E-UIDL 用户界面描述语言下的开发方法, 软件学报, 26(7), pp. 1772-1784, 2015.
- **杜一**, 郭旦怀, 周园春, 黎建辉, 一种大规模时空数据处理与可视化框架. 计算机研究与发展, 51(s2), pp. 10-17, 2015.
- 任磊, **杜一**, 马帅, 张小龙, 戴国忠, 大数据可视分析综述, 软件学报, 25(19), pp. 1909-1936, 2014.
- **杜一**, 田丰, 马翠霞, 戴国忠, 王宏安, 基于多尺度描述方法的移动用户界面生成框架. 计算机学报. 36(11), pp. 2179-2190, 2013.
- **杜一**, 任磊. DaisyVA:支持信息多面体可视分析的智能交互式可视化平台, 计算机辅助设计与图形学学报, 25(8), pp. 1177-1182, 2013.
- Lei Ren, Jin Cui, **Yi Du**,Guozhong Dai, Multilevel Interaction Model For Hierarchical Tasks In Information Visualization, 6th International Symposium on Visual Information Communication and Interaction, 2013.
- **杜一**, 邓昌智, 田丰, 戴国忠, 一种新的用户界面描述语言. 软件学报, 24(5), pp. 1127-1142, 2013.
- **杜一**, 吕菲, 田丰, 侯文君, 马翠霞, 戴国忠, 一种支持超视频创建与可视呈现的草图界面技术, 软件学报, 24(s2), pp. 32-41, 2013.
- **杜一**, 田丰, 王锋, 戴国忠, 王宏安, 一种移动环境下的用户模型, 软件学报, 22(s1), pp. 120-128, 2011.

专利

- 一种支持时序特征探查的统计地图绘制方法. 杜一, 周园春, 黎建辉. 201610753059.7
- **一种时空延迟相关性可视化方法. 杜一, 周园春, 黎建辉. 201610694753. （已产业化）**
- 一种基于主题流的时空延迟相关性可视化方法. 杜一, 周园春, 黎建辉. 201610640243.0
- 一种基于气象数据的监测指标时空延迟相关性计算方法. 杜一, 崔文娟, 周园春, 黎建辉 2016104650296
- 一种基于时序相关性的空间聚类方法. 杜一, 崔文娟, 吕菲, 周园春, 黎建辉. 201610404636.1
- 一种基于访问热度的时空数据服务调度方法. 郭旦怀, 杜一, 周园春, 黎建辉. 2014108485284
- 一种基于 WEB 的多模型数据可视化开发方法及平台. 杜一, 郭旦怀, 周园春, 黎建辉. 2014108493971
- 一种交互式空间场景检索方法. 郭旦怀, 杜一, 周园春, 黎建辉. 201310682924X

Yi Du   Computer Network Information Center, Chinese Academy of Sciences

Phone:+86-15810134970   Email：duyi@cnic.cn   Homepage: http://yiducn.github.io/

Personal Information

Gender：   Male   Date of Graduate：July, 2013

Address：   4# Building, South 4th Street Zhong Guan Cun. Beijing, P.R.China. 100190

Backgrounds

2015.12~Now   Department of Big Data Technology and Application Development, Computer Network Information Center   Beijing, China

- Job Title: **Associate Professor**
- Research Interest: **Data Mining, Visual Analytics**

2015.09~2016.09   School of Electrical and Computer Engineering, Purdue University   USA

- Job Title: **Visiting Scholar**
- Research Interest: **Spatio-temporal Visualization, Visual Analytics**

2013.09~2015.12   Scientific Data Center, Computer Network Information Center, CAS   Beijing, China

- Job Title: **Assistant Professor**
- Research Interest: **Data Processing, Data Visualization, HCI**

2008.09~2013.09   Institute of Software Chinese Academy of Sciences   Beijing, China

- Major: Computer Applied Technology   **Doctoral Degree**
- Research Interest: **Human Computer Interaction(HCI), Information Visualization**

2004.08-2008.07   Shandong University   Jinan

- Major: Software Engineering   Bachelor's Degree

Abilities

- Master the design and development of **data science system**, including data collecting, wrangling, analyzing, mining, visualizing and interacting.
- Master analyzing and mining of **large-scale spatio-temporal data**.
- Experiences in coding with **Java, JavaScript**. Familiar with Python and C++.
- Experiences in **MongoDB, DB2**. Familiar with MS SQLServer and Oracle.
- Experiences in traditional **data mining and machine learning algorithms**. Familiar with Hadoop, Titan, Kylin, etc.

Highlights

- Participated in an **open source** project Gephi, contributed several plugins with over 3000 lines of code.
- An analytics platform named **DVIZ**, in which I played the leading role, gained several prizes in China.
- The youngest associate professor and master advisor at CNIC, CAS until now.
- "Best Employee Award" (3%) for two years (2014-2016).
- **IBM certificated expert** on DB2 Administrator and XML Technology.

Selected Publications & Papers

- [1] Lei Ren, Yongchang Wei, Jin Cui, **Yi Du**, A Sliding Window based Multi-stage Clustering and Probabilistic Forecasting Approach for Large Multivariate Time Series Data, Journal of Statistical Computation and Simulation (GSCS),2017. (SCI)
- [2] Wenjuan Cui, Pengfei Wang, Xin Chen, **Yi Du**, Danhuai Guo, Yuanchun Zhou, Jianhui Li, An Algorithm for Event Detection Based on Social Media Data, Neurocomputing,2017. (SCI)
- [3] **Yi Du**, Cuixia Ma, Chao Wu, Xiaowei Xu, Yike Guo, Yuanchun Zhou, Jianhui Li, A Visual Analytics Approach for Station-based Air Quality Data, Sensors (Big Data and Cloud Computing for Sensor Networks),17(1), 30, 2017. (SCI)
- [4] **Yi Du**, Danhuai Guo, Xin Chen, Lei Ren, Guozhong Dai, DVIZ: A Model-driven Visualization System, Journal of Software, vol. 27, no. 5, pp. 1199-1211, 2016
- [5] **Yi Du**, Qianyu Liu, Yuanchun Zhou, Jianhui Li, DVIZ: A Model-driven Visualization Generation System (Poster), in IEEE Symposium on Visual Analytics Science and Technology (VAST) 2015, Chicago, USA, 2015.
- [6] Danhuai Guo, **Yi Du**,A Visualization Platform for Spario-Temporal Data: a Data Intensive Computation Framework, in the 23rd International conference on Geoinformatics 2015, Wuhan, China, 2015. (To appear)
- [7] **Yi Du**, Feng Tian,Guozhong Dai, A Development Approach Based on Extensible User Interface Description Language, Journal of Software, vol. 26, no. 7, pp. 1772-1784, 2015.
- [8] **Yi Du**, Danhuai Guo, Yuanchun Zhou,Jianhui Li, A Data Processing and Visualization Platform for Large-scale Spatio-temporal Data, Journal of Computer Research and Development, vol. 51, no. s2, pp. 10-17, 2015.
- [9] Lei Ren, **Yi Du**, Guozhong Dai, Human-Computer Interaction Based on Semantic Focus+Context For Big Data Visualization in Small Interface, Chinese Journal of Computers, 2015.
- [10] Lei Ren,**Yi Du**, A Sketch+Fisheye Interface for Visual Analytics of Large Time-Series (Poster), in IEEE Symposium on Visual Analytics Science and Technology (VAST) 2014, Paris, France, 2014, pp. 265-266.
- [11] Lei Ren, **Yi Du**, Shuai Ma,XiaoLong Zhang, Visual Analytics Towards Big Data, Journal of Software, vol. 25, no. 19, pp. 1909-1936, 2013.
- [12] Lei Ren, Jin Cui, **Yi Du**, Guozhong Dai, Multilevel Interaction Model For Hierarchical Tasks In Information Visualization, in The 6th International Symposium on Visual Information Communication and Interaction (VINCI 2013) Tianjin, China, 2013, pp. 11-16.
- [13] Yingying Jiang, Feng Tian, Guang Li, Xiaolong (Luke) Zhang, **Yi Du**, Guozhong Dai,Hongan Wang, SpeechTouch: Precise Cursor Positioning on Touch Screen Mobiles, in 15th International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI 2013), Munich, 2013.
- [14] **Yi Du**, Feng Tian, Cuixia Ma,Guozhong Dai, A User Interface Generation Framework Based on Multi-scale Description Method, Chinese Journal of Computers, vol. 36, no. 11, pp. 2179-2190, 2013.
- [15] **Yi Du**, Lei Ren, DaisyVA:An Intelligent Interactive Visualization Platform for Visual Analysis of Multi-Facet Information, Journal of Computer-Aided Design & Computer Graphics, vol. 25, no. 8, pp. 1177-1182, 2013.
- [16] **Yi Du**, Changzhi Deng, Feng Tian,Guozhong Dai, Extensible user interface description language, Journal of Software, vol. 24, no. 5, pp. 1127-1142, 2013.
- [17] **Yi Du**, Fei Lv, Feng Tian, Wenjun Hou, Cuixia Ma,Guozhong Dai, Sketch-Based interface for creation and visual representation of hyper videos, Journal of Software, vol. 24, no. Suppl.(2), pp. 32-41, 2013.
- [18] **Yi Du**, Feng Tian, Guozhong Dai, Feng Wang,Hongan Wang, A User Model Based on Mobile Environment, Journal of Software, vol. 22, pp. 120-128, 2011.
- [19] **Yi Du**, Cuixia Ma, Dongxing Teng,Guozhong Dai, CONCEPT-SKETCH: A Tool for Cooperative Visual Analytics, International Journal of Advanced Intelligence (IJAI), vol. 3, no. 1, pp. 95-113, 2011.

Patents

- A spatio-temporal lead/lag correlation visualization method. **Yi Du**, Yuanchun Zhou, Jianhui Li. App. No. 201610694753.6
- A visualization method on spatio-temporal lead/lag correlation based on Theme River. **Yi Du**, Yuanchun Zhou, Jianhui Li. App. No. 201610640243.0
- A spatio-temporal lead/lag correlation calculation method based on meteorological data. **Yi Du**, Wenjuan Cui, Yuanchun Zhou, Jianhui Li. App. No.2016104650296
- A spatial clustering medhod based on time series correlation. **Yi Du**, Wenjuan Cui, Fei Lv, Yuanchun Zhou, Jianhui Li. App. No. 201610404636.1
- A dispatch method of spatio-temporal data service based on access heat. Danhuai Guo, **Yi Du**, Yuanchun Zhou, Jianhui Li. App. No. 2014108485284
- A visualization development method and platform based on web environment. **Yi Du**, Danhuai Guo, Yuanchun Zhou, Jianhui Li. App. No. 2014108493971
- A interactive spatial scene search method. Danhuai Guo, **Yi Du**, Yuanchun Zhou, Jianhui Li. App. No. 201310682924X

Selected Research Projects

- **Study on the method of interactive spatio-temporal data visualization based on Overview+Detail**
  Knowledge Innovation Program of Chinese Academy of Sciences (leader, 2015-2016)
- **Study on the method of model driven mass space-time data visualization development**
  National Natural Science Foundation of China (leader,2015-2017)
- Research and application of comprehensive evaluation over cities
  Science and Technology Service Network Initiative (STS) (project participant)
- Virtual management technology and system of domain specific cloud computing
  Informatization project of CAS (project participant)
- Research on services of large spatio-temporal data faced to emergency
  National Natural Science Foundation of China (project participant)
- Research on Metaphor-based Interactive Learning Environment for Children
  National Natural Science Foundation of China (project participant)
- Personal information management research for more equipment
  National Natural Science Foundation of China (project participant)

Software Corprights

- Spatio-temporal visual analytics system of epidemic disease. Reg. No. :2015SRBJ0246
- Online visualization system based on taxi data. Reg. No. :2015SRBJ0205
- Satallite visualization system based on lla.. Reg. No. :2014SRBJ0295

Social Activities

- Member of CCF、ACM and ACM SIGCHI CHINA Chapter
- Reviewer of Journal of Computer Application (In Chinese)
- PC member of ISMC 2016 （The 2016 International Simulation Multi-Conference）
- Reviewer of Challenge of Visual Analytics at ChinaVis 2016
- Member of Gephi Open Research Network

Project Experiences

2017.01-now	Management and Service Platform of Big NSFC Knowledge Data
	Hadoop, Ambari, Titan, GraphX, Apache Nifi, Apache Kylin
	Based on the long-collected data from NSFC (National Scientific Foundation of China), the platform re-organize researcher, achievement and project into a BigGraph model. Then, network analyzing and mining algorithms are used to get knowledge behind data.
2016.10-2017.01	Optimization of Alarm System about Navigation Mark
	Python, Random Forest
	Most of current alarm systems of navigation marks use rules and patterns to find abnormal events. This project used data mining algorithm to optimization the alarm system.
2015.09-2016.09	Correlation visual analytics system of large spatio-temporal data
	Java, JavaScript
	The system can help domain experts and analysts find potential cause and effect between multiple spatial regions and temporal scopes.
2014.08-2015.09	Data visualization platform (DVIZ) (http://www.dviz.cn/dviz)
	Java, ECharts, D3.js
	This is a visualization platform, similar to ManyEyes, but has more functions. This platform supports more than 9 data format, including 5 file and 4 database. Furthermore, it supports create one visualization with two or more charts, changes of one chart can affect the changes of other charts.
2014.06-2014.08	Radiation-hardened orbit design demonstration system
	Java, WorldWind SDK
2014.03-2014.07	Visualization system of a food factory
	ECharts, Java, MongoDB
2014.02-2014.03	H7N9 avian influenza data visualization system (http://www.dviz.cn/h7n9)
	D3.js
2013.10-2014.01	The taxi GPS data processing and visualization system
	Java, MongoDB, OpenLayers
	The dataset contains 4 billion items of taxi GPS. In this project, we used several techniques to optimize MongoDB and R, so that the system could deal with such dataset in seconds.
2013.07-2013.10	Orbit Data Visualization System
	Java, WorldWind SDK
2011.01-2012.12	Research on User Interface Description Language under mobile environment
	C, Java
2010.06-2012.01	Pen Based Operating Platform (PBOP)
	C
2010.07-2010.10	Direct Social Network Importer of Gephi
	Java, Netbeans RCP
	This is a sub project of Google Summer of Code 2010. It is a graph visualization software, and can import, visualize and export graph.
	My responsibility: Design and implement five data export plugins. These plugins can export data from twitter, Facebook and NYT, and convert these data into gephi format.
2009.06-2010.03	Information Visualization Toolkit: DaisyViz
	Java, Eclipse RCP