KANIT (HAM) WONGSUPHASAWAT (CURRICULUM VITAE)

kanitw@gmail.com   @kanitw   More information and demos at http://kanitw.github.io   Last Updated Oct 30, 2018

EDUCATION

University of Washington (2018)
MS & PhD Computer Science & Engineering
Area: Human-Computer Interaction, Data Visualization, Data Science
Advisor: Dr. Jeffrey Heer
★ Dissertation Award

Stanford University (2013)
MS Management Science & Engineering
Area: Human-Computer Interaction, Entrepreneurship
★ Awarded Fulbright Fellowship

Chulalongkorn University (2010)
BEng Computer Engineering
★ Awarded Gold Medal & HM The King Scholarship (ranked 1st of 800+ students)

EMPLOYMENT

Apple Inc. – Research Scientist   2018-Present
Lead a team to research and develop data visualization and interactive tools for data science and machine learning.

Interactive Data Lab, University of Washington – Graduate Researcher (Data Visualization Tools)   2013-2018
Led the design, development, and evaluation of Voyager, a recommendation-powered visualization tool for exploratory data analysis and the CompassQL visualization recommender engine – manage a team of 5 research assistants. (★ Won Knight Prototype Grant, adopted by Jupyter data science community) – http://github.com/vega/voyager & http://github.com/vega/compassql

Co-led the design & development of the Vega-Lite high-level grammar for interactive visualizations–manage a team of 7 research assistants. (~2M hits on JSDelivr/month; wrapped in Python as Altair; shipped with JupyterLab; used at leading tech companies including AirBnB, Apple, Google, Microsoft, Netflix, Twitter, and Uber; used for teaching at top universities such as Stanford, CMU, UMD, and UW) – http://vega.github.io/vega-lite

Co-designed declarative interaction model for the Vega visualization grammar. – http://vega.github.io/vega

Conducted interviews with data scientists to understand current practices and difficulties in exploratory data analysis.

Google Inc. – Software Engineering Intern (Big Picture Group, Google Research)   2015
Led the design & development of TensorFlow Graph Visualizer, a tool to visualize dataflow graphs of deep learning models in TensorFlow (with Dr. Martin Wattenberg, Dr. Fernanda Viégas and Google Brain). – Shipped with Google's TensorFlow library as a part of TensorBoard – https://www.tensorflow.org/get_started/graph_viz

Trifacta Inc. – Software Engineering Intern   2014
Designed & prototyped intelligent user interfaces for data cleaning and transformations.

Tableau Software Inc. – Research Intern (Visual Analysis Team)   2013
Designed & prototyped visualization recommender system (with Dr. Jock Mackinlay & Dr. Anushka Anand). ★ US Patented

HCI Group, Stanford University – Graduate Researcher   2013
Research on peer assessment system for massive online classroom (with Dr. Scott Klemmer & Dr. Chinmay Kulkarni).

Venture Lab, Stanford University – Graduate Researcher & UX Lead   2012-2013
Led initial user experience design for Venture-lab, a MOOC platform (spun off as NovoEd).

Google Inc. - *Software Engineering Intern (HCI Group, Google Research)*   2012
Researched & developed a mobile social software prototype (with Dr. Elin Pedersen and Dr. Bay-Wei Chang).

Thomson Reuters Software - *Associate Software Engineer*   2010-2011
Led UI Design for Alerting and Monitoring System of Thomson Reuters Market Data System.

Singha Corporation (Thailand) - *Management Trainee Intern*   2010
Organized regional marketing campaign to increase sales & cross-functional management and business training.

Thomson Reuters Software - *Software Engineering Intern*   2009
Developed test cases management system for data access control product.

PUBLICATIONS: REFEREED PAPERS

P11. Fast and Flexible Overlap Detection for Chart Labeling with Occupancy Bitmap
Chanwut Kittivorawong, Dominik Moritz, Kanit Wongsuphasawat, Jeffrey Heer.
IEEE Trans. Visualization & Computer Graphics (InfoVis) 2020.

P10. mage: Fluid Moves Between Code and Graphical Work in Computational Notebooks
Mary Beth Kery, Donghao Ren, Fred Hohman, Dominik Moritz, Kanit Wongsuphasawat, Kayur Patel.
ACM User Interface Software and Technology (UIST) 2020.

P9. Understanding and Visualizing Data Iteration in Machine Learning
Fred Hohman, **Kanit Wongsuphasawat,** Mary Beth Kery, Kayur Patel.
ACM Human Factors in Computing Systems (CHI) 2020. [24% Acceptance Rate]

P8. Tempura: Query Analysis with Structural Templates
Tongshuang Wu, **Kanit Wongsuphasawat,** Donghao Ren, Kayur Patel, Chris Dubois.
ACM Human Factors in Computing Systems (CHI) 2020. [24% Acceptance Rate]

P7. Visualizing Dataflow Graphs of Deep Learning Models in TensorFlow
Kanit Wongsuphasawat, Daniel Smilkov, James Wexler, Jimbo Wilson, Dandelion Mané, Doug Fritz, Fernanda Viégas, Martin Wattenberg.
IEEE Trans. Visualization & Computer Graphics (VAST) 2017. [23% Acceptance Rate] ★ Best Paper Award (Top 1)

P6. Voyager 2: Augmenting Visual Analysis with Partial View Specifications
Kanit Wongsuphasawat, Zening Qu, Dominik Moritz, Riley Chang, Felix Ouk, Anushka Anand, Jock Mackinlay, Bill Howe, Jeffrey Heer.
ACM Human Factors in Computing Systems (CHI) 2017. [25% Acceptance Rate]

P5. GraphScape: A Model for Automated Reasoning about Visualization Similarity and Sequencing.
Younghoon Kim, **Kanit Wongsuphasawat,** Jessica Hullman, Jeffrey Heer.
ACM Human Factors in Computing Systems (CHI) 2017. [25% Acceptance Rate] ★ Best Paper Honorable Mention (Top 5%)

P4. Vega-Lite: A Grammar of Interactive Graphics.
Arvind Satyanarayan, Dominik Moritz, **Kanit Wongsuphasawat,** Jeffrey Heer.
IEEE Trans. Visualization & Computer Graphics (InfoVis) 2016. [22% Acceptance Rate] ★ Best Paper Award (Top 1)

P3. Towards A General-Purpose Query Language for Visualization Recommendation.
Kanit Wongsuphasawat, Dominik Moritz, Anushka Anand, Jock Mackinlay, Bill Howe, Jeffrey Heer.
ACM SIGMOD Human-in-the-Loop Data Analysis (HILDA) 2016. [50% Acceptance Rate] ★ Distinguished Long Talk

P2. Voyager: Exploratory Analysis via Faceted Browsing of Visualization Recommendations
Kanit Wongsuphasawat, Dominik Moritz, Anushka Anand, Jock Mackinlay, Bill Howe, Jeffrey Heer.
IEEE Trans. Visualization & Computer Graphics (InfoVis) 2015. [22% Acceptance Rate] ★ 1 of 4 Top TVCG papers invited to SIGGRAPH'16

P1. Declarative Interaction Design for Data Visualization.
Arvind Satyanarayan, **Kanit Wongsuphasawat,** Jeffrey Heer.
ACM User Interface Software and Technology 2014. [22% Acceptance Rate]

PUBLICATIONS: EXTENDED ABSTRACTS

E3. The Future of Notebook Programming Is Fluid.
Mary Beth Kery, **Kanit Wongsuphasawat,** Fred Hohman, Kayur Patel. ACM Human Factors in Computing Systems (CHI) 2020

E2. Visualizing Attention in Sequence-to-Sequence Summarization Models.
Halden Lin, **Kanit Wongsuphasawat,** Tongshuang Wu, Yejin Choi, Jeffrey Heer. IEEE Trans. Visualization & Computer Graphics (VAST) 2018

E1. You Can't Force Calm: Designing and Evaluating Respiratory Regulating Interfaces for Calming Technology.
Kanit Wongsuphasawat, Alex Gamburg, Neema Moraveji. ACM User Interface Software and Technology (UIST) 2012.

PUBLICATIONS: TECHNICAL REPORTS

T2. Goals, Process, and Challenges of Exploratory Data Analysis: An Interview Study.
Kanit Wongsuphasawat, Yang Liu, Jeffrey Heer. arXiv 2019

T1. Plasma-Z: Team Description for Robocup: Small Size League.
Chitchanok Chuengsatiansup, Thiraphat Charoensriphngsa, **Kanit Wongsuphasawat,** Komsit Rattana, Pawawat Duongsodsri, Aphilux Buathong, Kittipat Wejwittayaklung, Manop Wongsaisuwan, Wittaya Wannasuphoprasit. International Robocup 2009 ★3rd Place

PATENTS

PT1. Systems and Methods for Ranking Data Visualizations.
Anushka Anand, Jock Mackinlay, **Kanit Wongsuphasawat.** US Patent 9,613,102 (2017)

HONORS & AWARDS

IEEE TVCG VAST Best Paper Award (TensorFlow Graph Visualizer)	2017
ACM SIGCHI Best Paper Honorable Mention (GraphScape)	2017
IEEE TVCG InfoVis Best Paper Award (Vega-Lite)	2016
Invited to SIGGRAPH as 1 of 4 Top TVCG Paper (Voyager)	2016
Winner of Knight Prototype Grant (Voyager)	2015
Fulbright Fellowship (for studies at Stanford)	2011-2013
Valedictorian Gold Medal Award – Chulalongkorn Faculty of Engineering	2010

His Majesty the King Bhumibol Undergraduate Scholarship – Chulalongkorn Faculty of Engineering	2010
Winner of Thailand National Software Contest (University Level)	2010
3rd Place of Small-size League Soccer Robot at the International Robocup	2009
HRH the Royal Crown Prince of Thailand Top Engineering Student Medal	2009
Chulalongkorn University President Awards for Outstanding Students	2007, 2008, 2009
Runner-Up – Thailand ICT Award (University Level)	2008
3rd Place High Performance Award –Accenture Thailand Academic Exhibition	2008
Honorable Mention – ACM ICPC Regional Contest	2008
Winner – SAMART Innovation Award (A premier mobile software contest in Thailand)	2007
Bronze Medalist – Thailand Olympiad in Informatics	2004

INVITED TALKS

Open Source Directions: Vega https://www.youtube.com/watch?v=D5lntoT8TgA

Webminar	Aug 2019

Declarative Visualization with Vega-Lite and Altair

ODSC West	Oct 2019
ODSC East	May 2019

Augmenting Visualization Tools with Automated Design & Recommendation https://youtu.be/62k_JMOgFcc

MIT Human-Computer Interaction Seminar, Cambridge, MA	Nov 2018
Uber Visualization Nights, San Francisco, CA	Apr 2018
Databricks, San Francisco, CA	Mar 2018
Apple (Turi / Machine Learning Group), Seattle, WA	Mar 2018
Google (People+AI Research Initiative), Cambridge, MA	Mar 2018
Microsoft (PowerBI Team), Seattle, WA	Mar 2018
Microsoft Research, Seattle, WA	Mar 2018
Tableau Software, Seattle, WA	Feb 2018

Visualizing Dataflow Graphs of Deep Learning Models in TensorFlow https://www.youtube.com/watch?v=NTL12U1X2fc

IEEE VAST 2017, Phoenix, AZ	Oct 2017

Voyager 2: Augmenting Visual Analysis with Partial View Specifications https://www.youtube.com/watch?v=nrnN0l3rjdk

ACM SIGCHI (Human Factor in Computer Systems), Denver, CO	May 2017

Vega-Lite: A Grammar of Interactive Graphics https://www.youtube.com/watch?v=Nsrz4YdaZ_A

Electrochemical Society Hackweek, Seattle, WA	May 2018
Microsoft Research, Seattle, WA	Nov 2017
Apple Inc., Seattle, WA	Aug 2017
OpenVisConf, Boston, MA	Apr 2017

Vega-Lite: A Declarative Format for Data Visualization

PlotCon, New York City, NY	Nov 2016

Towards A General-Purpose Query Language for Visualization Recommendation

HILDA at ACM SIGMOD (Workshop on Human-In-The-Loop Data Analytics)	June 2016

Vega-Lite Tutorials

UC Davis (Teleconference)	May 2016

Voyager: Exploratory Analysis via Faceted Browsing of Visualization Recommendations

SIGGRAPH 2016, Anaheim, CA	Jul 2016
Tableau Software, Seattle, WA	Jan 2016
IEEE InfoVis 2015	Nov 2015

Visualization Tools & Visualization Recommender Systems

MFEC Corporation, Bangkok, Thailand	Dec 2016
Chulalongkorn University, Bangkok, Thailand	Dec 2016

Brief Introduction to Human-Computer Interaction

Chulalongkorn University, Bangkok, Thailand	Jun 2014

SELECTED MEDIA COVERAGE

Vega-Lite & Altair

Vega-Lite: A Crash Course (by Visnu Pitiyanuvath) *Observable Meetup*   Mar 2020
https://www.youtube.com/watch?v=ZV_Yjcs5WtM

Why I'm backing Vega-Lite as our default tool for data visualization (by Robin Linacre) *Medium*   Aug 2018
https://medium.com/@robin.linacre/why-im-backing-vega-lite-as-our-default-tool-for-data-visualisation-51c20970df39

Declarative Visualization with Vega-Lite and Altair *Data Stories Podcast* ★   Feb 2018
https://datastori.es/121-declarative-visualization-with-vega-lite-and-altair-with-dominik-moritz-jacob-vanderplas-kanit-ham-wongsuphasawat/

Data visualization tools drive interactivity and reproducibility in online publishing *Nature* ★   Jan 2018
https://www.nature.com/articles/d41586-018-01322-9

Visualizations Reach a New Height (Literally) *Qlik Branch*   Jul 2017
https://branch-blog.qlik.com/visualization-reach-a-new-height-literally-30a4005f4c10

Trends in Data Visualization *LabManager*   May 2017
https://www.labmanager.com/ask-the-expert/trends-in-data-visualization-3099

A High-level Language for Interactive Data Visualization *IEEE Computer Society*   Apr 2017
https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=7912245

Five Python libraries that make data visualisation easy *OpenSourceForU*   Mar 2017
https://opensourceforu.com/2017/03/python-libraries-data-visualisation/

A Snapshot of Current Trends in Visualization 2017 *IEEE Computing Now*   Feb 2017
https://communities.computer.org/web/computingnow/archive/snapshot-visualization-trends-february-2017-introduction

Highlights from IEEE VIS'16 with Jessica Hullman and Robert Kosara *Data Stories Podcast*   Nov 2016
https://datastori.es/86-highlights-from-ieee-vis16-with-jessica-hullman-and-robert-kosara/

11 (Papers + Talks) Highlights from IEEE VIS'16 *Fell in Love With Data*   Oct 2016
https://filwd.wordpress.com/2016/10/30/11-papers-talks-highlights-from-ieee-vis16/

A Dramatic Tour through Python's Data Visualization Landscape *Regress to Impress*   Oct 2016
https://dsaber.com/2016/10/02/a-dramatic-tour-through-pythons-data-visualization-landscape-including-ggplot-and-altair/

Vega-Lite for Quick Online Charts *Flowing Data* ★   Feb 2016
https://flowingdata.com/2016/02/25/vega-lite-for-quick-online-charts/

Voyager

Data Visualization for Artificial Intelligence, and Vice Versa *Plotly*   Mar 2018
https://medium.com/plotly/data-visualization-for-artificial-intelligence-and-vice-versa-a38869065d88

IEEE VIS'15 Recap with Robert Kosara and Johanna Fulda *Data Stories Podcast*   Nov 2015
https://datastori.es/vis15-recap-with-robert-kosara-and-johanna-fulda-ds-63/

Two Highlights of IEEE's 2015 VisWeek Conference *Perceptual Edge's Visual Business Intelligence* ★   Nov 2015
https://www.perceptualedge.com/blog/?p=2168

Voyager wants to help journalists find and illustrate data stories *Journalism.co.uk*   Aug 2015
https://www.journalism.co.uk/news/how-voyager-wants-to-help-journalists-find-and-illustrate-stories-with-data/s2/a566078/

Higher-Level Tools for Interactive Data Visualization *Intel Science & Technology Center for Big Data Blog* Jun 2015
http://istc-bigdata.org/index.php/higher-level-tools-for-interactive-data-visualization/

TensorFlow Graph Visualizer

Data Visualization for Artificial Intelligence, and Vice Versa *Plotly*   Mar 2018
https://medium.com/plotly/data-visualization-for-artificial-intelligence-and-vice-versa-a38869065d88

A Snapshot of Current Trends in Visualization 2018 *IEEE Computing Now*   Feb 2018
https://www.computer.org/publications/tech-news/computing-now/february-2018-theme-a-snapshot-of-current-trends-in-visualization

Review of IEEE VIS'17 with Jessica Hullman and Robert Kosara *Data Stories Podcast*   Nov 2017
https://datastori.es/108-review-of-ieee-vis17-with-jessica-hullman-and-robert-kosara/

Visualizing Dataflow Graphs of Deep Learning Models in TensorFlow *Hacker News (Front Page)*   Oct 2017
https://news.ycombinator.com/item?id=15305774

Visualizing your model using TensorBoard *Toward Data Science*   Sep 2017
https://towardsdatascience.com/visualizing-your-model-using-tensorboard-796ebb73e98d

Visualizing convolutional neural networks *O'Reilly Idea*   Sep 2017
https://www.oreilly.com/radar/visualizing-convolutional-neural-networks/

Introduction to TensorFlow *Hack a Day*   Apr 2017
https://hackaday.com/2017/04/11/introduction-to-tensorflow/

The indico Machine Learning Team's Take on TensorFlow *Indico*   May 2016
https://indico.io/blog/indico-tensorflow/

TEACHING

University of Washington
Course Assistant: CSE442 Data Visualization (for undergraduate students)   2017
Course Assistant: CSE512 Data Visualization (for PhD students)   2014
Mentored and graded student projects / developed D3 & web development workshops (https://github.com/uwdata/d3-tutorials)

Chulalongkorn University
Course Assistant: Entrepreneurship Course (Chulalongkorn Business School)   2010
Mentor and grade student projects.

Course Assistant: Discrete Mathematics (Computer Engineering Department)   2009
Develop problem sets and online tutorials

ACTIVITIES & SERVICES

Publication Reviewer – IEEE InfoVis 2014-20, ACM SIGCHI 2014-19, ACM UIST 2016-18, 2020, IEEE VAST 2016-19, IEEE SciVis 2018

Program Committee – IEEE InfoVis 2020, ACM IUI 2019, MLVis at EuroVis 2019, VisxAI at IEEE VIS 2018

Student Volunteer – ACM UIST 2012

Visualization Illustrator – "Making Data Visual", a book by Danyel Fisher and Miriah Meyer

Admission Committee – UW CSE PhD Student Admission 2015

Seminar Organizer – Interactive Systems Seminar 2014

Club President – Chulalongkorn IEEE Computer Student Society 2008-2009

Author – Solution guide for problem sets in Chulalongkorn Calculus I & II Text Book

Designer – UW Interactive Data Lab logo, business cards, poster themes

Member – Association for Computing Machinery (ACM, 2012-2018), UW Interactive Data Lab (2013-2018), UW Design-Use-Build group (2013-2018), Business Association of Stanford Entrepreneurial Students (BASES, 2011-2013), Stanford Design Initiative (2012-2013), Thai Young Philanthropists Network (2010), Capitol Toastmasters Club of Toastmaster International (2010), Chulalongkorn Business Plan Club (2010), Chulalongkorn Engineering Innovator's Club (2009-2011), Chulalongkorn Photographer's club (2009-2011)

SELECTED COVERAGE IN CONFERENCES & MEETUPS

Vega-Lite & Altair

How to Think about Data Visualization (by Jake Vanderplas) *PyCon 2019*   May 2019
https://www.youtube.com/watch?v=vTingdk_pVM

Building customer-visible data science dashboards with Altair / Vega / Vue (by Uwe L Korn) *PyData Amsterdam 2018*   Jun 2018
https://www.youtube.com/watch?v=4L568emKOvs

Exploratory Data Visualization with Vega, Vega-Lite, and Altair (by Jake Vanderplas) *PyCon 2018*   May 2018
https://www.youtube.com/watch?v=ms29ZPUKxbU

The Python Visualization Landscape (by Jake Vanderplas) *Pycon 2017 Keynote*   May 2017
https://www.youtube.com/watch?v=FytuB8nFHPQ

Altair: Declarative, Statistical Visualization for Python (by Brian Granger) *PyData SF 2016*   Aug 2016
https://www.youtube.com/watch?v=aRxahWy-ul8

Voyager

Agency + Automation: Designing Artificial Intelligence into Interactive Systems (by Jeffrey Heer) *NeurIPS 2019*   Dec 2019
https://slideslive.com/38922321/agency-automation-designing-artificial-intelligence-into-interactive-systems

Visualization is not Enough (by Jeffrey Heer) *Eurovis 2019 Capstone Talk*   Jun 2019
https://www.youtube.com/watch?v=bXrhrrgLPKg

Constructing Charts and Graphs (by Jeffrey Heer) *National Academy of Sciences Colloquium*   Apr 2018
https://www.youtube.com/watch?v=ouIFSDQwkQM

Interactive Data Analysis: Visualization and Beyond (by Jeffrey Heer) *PyData Seattle 2017 Keynote*   Jul 2017
https://channel9.msdn.com/Events/PyData/Seattle2017/Key04

The Future of Data Visualization (by Jeffrey Heer) *Strata + Hadoop 2015 Keynote*   Jun 2015
https://www.youtube.com/watch?v=vc1bq0qIKoA

TensorFlow Graph Visualizer

Seeing Machines Think (by Jeffrey Heer) *OpenVisConf 2016 Keynote* ★   April 2016
https://youtu.be/ugkfmHBW74Q