

# KANIT (HAM) WONGSUPHASAWAT (CURRICULUM VITAE)

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## EDUCATION

**University of Washington** (Exp. Summer'18)

**MS & PhD Computer Science & Engineering**

Area: Human-Computer Interaction,  
UI Systems, Data Visualization, Data Science

Advisor: Dr. Jeffrey Heer

**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)

## REFEREED PAPERS

**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. GraphScope: 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]

## EXTENDED ABSTRACTS & TECHNICAL REPORTS

**T2. You Can't Force Calm: Designing and Evaluating Respiratory Regulating Interfaces for Calming Technology.**

Kanit Wongsuphasawat, Alex Gamborg, Neema Moraveji. ACM User Interface Software and Technology (UIST) 2012.

**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 Wannasuphopsrit. International Robocup 2009 ★ 3<sup>rd</sup> Place

## PATENTS

**P1. Systems and Methods for Ranking Data Visualizations.**

Anushka Anand, Jock Mackinlay, Kanit Wongsuphasawat. US Patent 9,613,102 (2017)

## EMPLOYMENT

**Interactive Data Lab, University of Washington – Graduate Researcher (Data Visualization Tools)**

2013-Present

- Lead the design, development, and user studies of **Voyager**, a recommendation-powered visualization tool for exploratory data analysis and the **CompassQL** visualization query language & recommender engine – manage a team of 5 research assistants (★ Won Knight Prototype Grant, adopted by Jupyter data science community) – <http://vega.github.io/voyager> & <http://github.com/vega/compassql>
- Co-lead the design & development of the **Vega-Lite** high-level grammar for interactive visualizations—manage a team of 6 research assistants (30k NPM downloads/month, wrapped in Python as Altair, shipped with JupyterLab, used at leading tech companies including Apple, Google, Microsoft, Netflix, and Twitter) – <http://vega.github.io/vega-lite>
- Co-designed declarative interaction model for the **Vega** visualization grammar – <http://vega.github.io/vega>
- Conduct 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](https://www.tensorflow.org/get_started/graph_viz)

<b>Trifacta Inc. – Software Engineering Intern</b> - Designed & prototyped intelligent user interfaces for data cleaning and transformations	2014
<b>Tableau Software Inc. – Research Intern (Visual Analysis Team)</b> - Designed & prototyped visualization recommender system (with Dr. Jock Mackinlay & Dr. Anushka Anand) ★ <a href="#">US Patented</a>	2013
<b>HCI Group, Stanford University – Graduate Researcher</b> - Research on peer assessment system for massive online classroom (with Dr. Scott Klemmer & Dr. Chinmay Kulkarni)	2013
<b>Venture Lab, Stanford University – Graduate Researcher &amp; UX Lead</b> - Led initial user experience design for Venture-lab, a MOOC platform (spun off as NovoEd)	2012-2013
<b>Google Inc. - Software Engineering Intern (HCI Group, Google Research)</b> - Researched & developed a mobile social software prototype (with Dr. Elin Pedersen and Dr. Bay-Wei Chang)	2012
<b>Thomson Reuters Software - Associate Software Engineer</b> - Led UI Design for Alerting and Monitoring System of Thomson Reuters Market Data System	2010-2011
<b>Singha Corporation (Thailand) - Management Trainee Intern</b> - Organized regional marketing campaign to increase sales & cross-functional management and business training	2010
<b>Thomson Reuters Software - Software Engineering Intern</b> - Developed test cases management system for data access control product	2009

## HONORS & AWARDS

<b>IEEE TVCG VAST Best Paper Award</b> (TensorFlow Graph Visualizer)	2017
<b>ACM SIGCHI Best Paper Honorable Mention</b> (GraphScape)	2017
<b>IEEE TVCG InfoVis Best Paper Award</b> (Vega-Lite)	2016
<b>Invited to SIGGRAPH as 1 of 4 Top TVCG Paper</b> (Voyager)	2016
<b>Fulbright Fellowship</b> (for studies at Stanford)	2011-2013
<b>Valedictorian Gold Medal Award</b> – Chulalongkorn Faculty of Engineering	2010
<b>His Majesty the King Bhumibol Undergraduate Scholarship</b> – Chulalongkorn Faculty of Engineering	2010
<b>Winner of Thailand National Software Contest</b> (University Level)	2010
<b>3rd Place of Small-size League Soccer Robot at the International Robocup</b>	2009
<b>HRH the Royal Crown Prince of Thailand Top Engineering Student Medal</b>	2009
<b>Chulalongkorn University President Awards for Outstanding Students</b>	2007, 2008, 2009
<b>Runner-Up – Thailand ICT Award</b> (University Level)	2008
<b>3rd Place High Performance Award –Accenture Thailand Academic Exhibition</b>	2008
<b>Honorable Mention – ACM ICPC Regional Contest</b>	2008
<b>Winner – SMART Innovation Award</b> (A premier mobile software contest in Thailand)	2007
<b>Bronze Medalist – Thailand Olympiad in Informatics</b>	2004

## INVITED TALKS

<b>Vega-Lite: A Grammar of Interactive Graphics</b> Microsoft Research, Seattle, WA	Nov 2017
Apple Inc. / Turi, Seattle, WA	Aug 2017
OpenVisConf, Boston, MA	Apr 2017
<b>Vega-Lite: A Declarative Format for Data Visualization</b> PlotCon, New York City, NY	Nov 2016
<b>Vega-Lite Tutorials</b> UC Davis (Teleconference)	May 2016
<b>Voyager: Exploratory Analysis via Faceted Browsing of Visualization Recommendations</b> SIGGRAPH 2016, Anaheim, CA	Jul 2016
Tableau Inc., Seattle, WA	Jan 2016

## Visualization Tools & Visualization Recommender Systems

MFEC Corporation, Bangkok, Thailand  
Chulalongkorn University, Bangkok, Thailand

Dec 2016  
Dec 2016

## Brief Introduction to Human-Computer Interaction

Chulalongkorn University, Bangkok, Thailand

Jun 2014

## MENTORING

### Vega-Lite

Ayush Saraf <i>BS Computer Science &amp; Engineering'18</i> (Joining Twitter as Associate Product Manager)	2015-2016
Youying Lin <i>BS Computer Science &amp; Engineering'16</i> (Now software engineer at Google)	2015-2016
Yuhan "Zoe" Lu <i>BS Computer Science &amp; Engineering'17</i> (Now software engineer at Facebook)	2015-2017
Will Strimling <i>BS Computer Science &amp; Engineering'18</i> (Joining Twitter as Associate Product Manager)	2015-Present
Chanwut (Mick) Kittivorawong <i>BS Computer Science &amp; Engineering'20</i>	2017-Present
Ishan Saksena <i>BS Informatics'18</i>	2017-Present
Sira Horradarn <i>BS Computer Science &amp; Engineering'18</i>	2017-Present
Swojit Mohapatra <i>BS Computer Science &amp; Engineering'18</i>	2017-Present

### Voyager/CompassQL

Riley Chang <i>BS Computer Science &amp; Engineering '18</i>	2016
Zening Qu <i>MS Human-Centered Design &amp; Engineering '16</i> (Now PhD Student at UW)	2016
Felix Ouk <i>BS Informatics'18</i>	2016-Present
Halden Lin <i>BS Computer Science &amp; Engineering'19</i>	2017-Present
Shaheen Sharifian <i>BS Informatics'18</i> (Joining Amazon as Software Engineer)	2017-Present
Alan Banh <i>BS Informatics'18</i>	2017-Present
Flon Chan <i>BS Informatics'18</i>	2017-Present

### Vega-Lite & Voyager/CompassQL

Matthew Chun <i>BS Computer Science &amp; Engineering'18</i>	2016-Present
Akshat Shrivastava <i>BS Computer Science &amp; Engineering'18</i>	2017-Present
Lingyue (Cynthia) Zhang <i>BS Computer Science &amp; Engineering'18</i>	2017-Present

## SELECTED MEDIA COVERAGE

### Vega-Lite & Altair

Visualizations Reach a New Height (Literally) <i>Qlik Branch</i>	Jul 2017
PyCon 2017 Keynote: The Python Visualization Landscape (by Jake VanderPlas)	May 2017
Trends in Data Visualization <i>LabManager</i>	May 2017
OpenVisConf 2017 Keynote (by Mike Bostock)	Apr 2017
A High-level Language for Interactive Data Visualization <i>IEEE Computer Society</i>	Apr 2017
Five Python libraries that make data visualisation easy <i>OpenSourceForU</i>	Mar 2017
A Snapshot of Current Trends in Visualization 2017 <i>IEEE Computing Now</i>	Feb 2017
Highlights from IEEE VIS'16 with Jessica Hullman and Robert Kosara <i>Data Stories Podcast</i>	Nov 2016
An Overview of Great Tools for Data Science <i>Signal-to-noise.xyz</i>	Nov 2016
Best of The Visualization Web <i>Visualizing Data</i>	Oct 2016
11 (Papers + Talks) Highlights from IEEE VIS'16 <i>Fell in Love With Data</i>	Oct 2016
A Dramatic Tour through Python's Data Visualization Landscape <i>Regress to Impress</i>	Oct 2016
Introduction to Data Visualization with Altair <i>Practical Business Python</i>	Aug 2016
Vega-Lite for Quick Online Charts <i>Flowing Data</i>	Feb 2016

### Voyager

Enabling data science for the majority <i>O'Reilly Idea</i>	Oct 2017
IEEE VIS'15 Recap with Robert Kosara and Johanna Fulda <i>Data Stories Podcast</i>	Nov 2015
Two Highlights of IEEE's 2015 VisWeek Conference <i>Perceptual Edge's Visual Business Intelligence</i>	Nov 2015
Voyager wants to help journalists find and illustrate data stories <i>Journalism.co.uk</i>	Aug 2015
Higher-Level Tools for Interactive Data Visualization <i>Intel Science &amp; Technology Center for Big Data Blog</i>	Jun 2015

### TensorFlow/TensorBoard Graph Visualizer

A Snapshot of Current Trends in Visualization 2018 <i>IEEE Computing Now</i>	Feb 2018
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<b>Review of IEEE VIS'17 with Jessica Hullman and Robert Kosara</b> <i>Data Stories Podcast</i>	Nov 2017
<b>Visualizing Dataflow Graphs of Deep Learning Models in TensorFlow</b> <i>Hacker News (Front Page)</i>	Oct 2017
<b>Visualizing your model using TensorBoard</b> <i>Toward Data Science</i>	Sep 2017
<b>Visualizing convolutional neural networks</b> <i>O'Reilly Idea</i>	Sep 2017
<b>Introduction to TensorFlow</b> <i>Hack a Day</i>	Apr 2017
<b>The Good, Bad, &amp; Ugly of TensorFlow</b> <i>Indico</i>	May 2016

## 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 2014-2017, IEEE VAST 2016-2017, ACM SIGCHI 2014-18, ACM UIST 2016

**Student Volunteer** – ACM UIST 2012

**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-Present), UW Interactive Data Lab (2013-Present), UW Design-Use-Build group (2013-Present), 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)