

# Arvind Satyanarayan

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@arvindsatya

## EDUCATION

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Ph.D. Computer Science

*Stanford University, June 2017 (expected)*

Advisor: Jeffrey Heer

M.S. Computer Science

*Stanford University, 2014*

B.S. Computer Science

*University of California, San Diego, 2011*

Advisor: James D. Hollan

## PUBLICATIONS

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

**Visual Debugging Techniques for Reactive Data Visualization.** Jane Hoffswell, Arvind Satyanarayan, Jeffrey Heer. *Computer Graphics Forum (Proc. EuroVis)*. June 2016. [27% Acceptance Rate]

**Reactive Vega: A Streaming Dataflow Architecture for Declarative Interactive Visualization.** Arvind Satyanarayan, Ryan Russell, Jane Hoffswell, Jeffrey Heer. *IEEE Trans. Visualization & Computer Graphics (Proc. InfoVis)*. October 2015. [22% Acceptance Rate]

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

**Lyra: An Interactive Visualization Design Environment.** Arvind Satyanarayan, Jeffrey Heer. *Computer Graphics Forum (Proc. EuroVis)*. June 2014. [25% Acceptance Rate]

**Authoring Narrative Visualizations with Ellipsis.** Arvind Satyanarayan, Jeffrey Heer. *Computer Graphics Forum (Proc. EuroVis)*. June 2014. [25% Acceptance Rate]

**Webzeitgeist: Design Mining the Web.** Ranjitha Kumar, Arvind Satyanarayan, Cesar Torres, Maxine Lim, Salman Ahmad, Scott R. Klemmer, Jerry O. Talton. *Proc. ACM Human Factors in Computing Systems (CHI)*. May 2013. [20% Acceptance Rate, **Best Paper Award (Top 1%)**].

**Using Overlays to Support Collaborative Interaction with Display Walls.** Arvind Satyanarayan, Nadir Weibel, James D. Hollan. *Proc. ACM Intelligent User Interfaces (IUI)*. February 2012. [19% Acceptance Rate]

## POSTERS & TECHNICAL REPORTS

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**The CHI 2013 Interactive Schedule.** Arvind Satyanarayan, Daniel Strazzulla, Clemens Klokmoose, Michel Beaudouin-Lafon, Wendy Mackay. *Extended Abstracts, ACM Human Factors in Computing Systems (CHI)*. May 2013.

**Learning Structural Semantics for the Web.** Maxine Lim, Ranjitha Kumar, Arvind Satyanarayan, Cesar Torres, Jerry O. Talton, Scott R. Klemmer. *Stanford CSTR 2012-03*. December 2012.

**A Platform for Large-Scale Machine Learning on Web Design.** Arvind Satyanarayan, Maxine Lim, Scott R. Klemmer. *Extended Abstracts, ACM Human Factors in Computing Systems (CHI)*. May 2012.

## PROFESSIONAL EXPERIENCE

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May 2014 – Sept 2016 **Co-Founder and Advisor**, *Apropose, Inc.*

Sept 2013 – May 2014 **Co-Founder and Chief Architect**, *Apropose, Inc.*

- Led initial development of core infrastructure and prototype applications, culminating in a successful **\$1.9M seed round** backed by NEA and Andreessen Horowitz.

- Summer 2012 & Spring 2016 **Research Intern, *In Situ Lab, INRIA and LRI, Université Paris-Sud***  
With Profs. Wendy Mackay and Michel Beaudouin-Lafon
- Designed an interactive schedule for the CHI 2013 conference, which coupled large displays and mobile devices to allow attendees to collaboratively filter and visualize upcoming events.
  - Developed a prototype visualization substrate to enable collaborative interactive visual analysis between multiple users using heterogeneous devices and a large display wall.
- 2011 – Present **Graduate Research Assistant, *Interactive Data Lab, Stanford Univ./Univ. of Washington***  
With Prof. Jeffrey Heer
- 2011 – 2012 **Graduate Research Assistant, *HCI Group, Stanford University***  
With Prof. Scott Klemmer
- 2010 – 2011 **Undergraduate Research Assistant, *DCog-HCI Lab, UC San Diego***  
With Prof. James Hollan
- Developed the **Overlay**: an interface element to facilitate multi-user, multi-device interactions on wall-sized displays.
  - Developed **HIPerFace**: a Java framework to combine interactions from multiple individual input device into novel composite interactions.
- Summer 2008 **Movable Type Product Intern, *Six Apart Ltd.***  
San Francisco, CA
- Developed an extensible revision history framework for Movable Type objects with a slider and `diff`-type interfaces.
  - Built a Perl-based system to allow community members to maintain profiles and submit plugins to be showcased for download.
- 2004 – 2007 **Publisher and Developer, *Movalog and Movalog Plugins***  
<http://www.movalog.com>
- Developed several popular plugins for Movable Type. One plugin, CustomFields, was **acquired** by Six Apart and is now bundled with Movable Type.
  - Co-organized The Style Contest, a design contest for Movable Type blog themes. Six Apart, Adobe and StyleMaster sponsored over \$17,000 in prizes, and judges included Derek Powazek, Jason Santa Maria and John Allsopp.
  - Author of an influential weblog in the Movable Type community featuring numerous tips, tutorials and articles.

## INVITED TALKS & DEMOS

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- April 2017 **Vega-Lite: A Grammar of Interactive Graphics**  
OpenVis Conf, *Boston, MA*
- April 2017 **Declarative Interaction Design for Data Visualization**  
Massachusetts Institute of Technology, *Computer Science, Cambridge, MA*
- April 2017 New York University, *Tandon Computer Science & Center of Data Science, New York City, NY*
- April 2017 University of California, San Diego, *Computer Science, San Diego, CA*
- April 2017 Northwestern University, *Computer Science, Evanston, IL*
- March 2017 University of British Columbia, *Computer Science, Vancouver, Canada*
- March 2017 University of Toronto, *Computer Science, Toronto, Canada*
- March 2017 University of Michigan, *Computer Science, Ann Arbor, MI*
- February 2017 University of California, Berkeley, *Computer Science, Berkeley, CA*
- February 2017 University of Illinois Urbana-Champaign, *Computer Science, Urbana, IL*
- February 2017 Cornell University, *Computer Science & Information Science, Ithaca, NY*
- February 2017 University of Wisconsin-Madison, *Computer Science, Madison, WI*

- The Vega Ecosystem**  
 October 2016 Keynote Address, Visualization In Practice Workshop, *IEEE VIS, Baltimore, MD*
- Reactive Building Blocks: Interactive Visualizations with Vega**  
 July 2016 Keynote Address, DataViz Camp, *United Nations*  
 April 2016 OpenVis Conf, *Boston, MA*
- Higher-Level Tools for Interactive Data Visualization**  
 May 2016 INRIA Saclay, *Saclay, France*  
 September 2015 BiD Seminar, *UC Berkeley, Berkeley, CA*
- Lowering the Threshold of Visualization Design**  
 April 2015 Linfield College, *Science Colloquium, McMinnville, OR*  
 December 2014 Tata Innovation Labs, *Tata Consultancy Services, Delhi, India*
- Designing Visualizations with Lyra Tutorial**  
 April 2015 I247: Information Visualization & Presentation, *UC Berkeley Information School, Berkeley, CA*  
 December 2014 Tata Innovation Labs, *Tata Consultancy Services, Delhi, India*  
 December 2014 J221: Introduction to Data Visualization, *UC Berkeley Journalism School, Berkeley, CA*  
 November 2014 HCDE 511: Information Visualization, *University of Washington, Seattle, WA*
- Lyra: An Interactive Visualization Design Environment**  
 April 2014 OpenVis Conf, *Boston, MA*  
 March 2014 CAR, *Baltimore, MD*  
 February 2014 Tapestry, *Annapolis, MD*
- NewsCamp :: Introduction to D3**  
 March 2014 CAR, *Baltimore, MD*

## TEACHING

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- Winter 2016 **HCID 520: User Interface Software & Technology**, *University of Washington*  
 Co-Instructor with Prof. Jeffrey Heer
- Winter 2013 **CS 247: Human-Computer Interaction Design Studio**, *Stanford University*  
 Graduate Teaching Assistant for Profs. Jeffrey Heer and Michael Bernstein
- Fall 2012 **CS 147: Introduction to Human-Computer Interaction**, *Stanford University*  
 Graduate Teaching Assistant for Prof. Scott Klemmer
- Winter 2012 **HCI Online #001**, *Stanford University and Coursera*  
 Graduate Teaching Assistant for Prof. Scott Klemmer

## MENTORING

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- Fall 2016 Tianyi "Tina" Lin, BS Computer Science & Engineering (UW '17)
- Summer & Fall 2016 Matthew Chun, BS Computer Science & Engineering (UW '18)
- Summer 2016 Yiyang "Amy" Xu, BS Computer Science & Engineering (UW '18)
- Summer 2016 Anjir Hossain, BS Human-Centered Design & Engineering (UW '18)
- Spring 2016 Nikhil Khanna, BS Computer Science & Engineering (UW '18)
- 2015 - 2016 Emily Gu, BS+MS Computer Science & Engineering (UW '16)
- Summer 2015 Ruijia "Iris" Wang, BS Computer Science & Engineering (UW '17)
- 2014 - 2016 Ryan Russell, BS Computer Science & Engineering (UW '16)

## SERVICE

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Reviewing	IEEE VIS 2014–2016, EuroVis 2014–2016, IEEE TVCG 2015–2016, ACM UIST 2014–2016, ACM CHI 2013–2016, ACM IUI 2012–2015, IEEE PacificVis 2016. <b>Recognition for exceptional reviews:</b> CHI 2017, VIS 2017.
Program Committees	OpenVis Conf 2016. ACM CHI 2016 Late-Breaking Work.
2013	Interactive Schedule Chair, <i>CHI 2013 Organizing Committee</i>
2009 – 2011	Resident Advisor, <i>Revelle College, UC San Diego</i>
2010 – 2011	Student Conduct Code Re-write Workgroup Student Representative, <i>UC San Diego</i>
2010 – 2011	Housing, Dining, Hospitality Advisory Committee Student Representative, <i>UC San Diego</i>
Summer 2010	Parent Orientation Leader, <i>Revelle College, UC San Diego</i>
2009 – 2010	Revelle College Senator, <i>Associated Students, UC San Diego</i>
2008 – 2009	Director of Communications, <i>Revelle College Council, UC San Diego</i>

## AWARDS & HONORS

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2016	IEEE InfoVis Best Paper Award (Vega-Lite)
2016 – 2018	Google PhD Fellowship
2013	ACM CHI Best Paper Award (Webzeitgeist)
2011 – 2014	SAP Stanford Graduate Fellowship, <i>Stanford University</i>
2011	Outstanding Senior, <i>UC San Diego Alumni Association</i>
2011	Phi Beta Kappa, <i>UC San Diego</i>
2010	Undergraduate Summer Research Scholar, <i>Calit2, UC San Diego</i>
2009, 2010	Ernest Mort Award for Excellence in Leadership, <i>Revelle College, UC San Diego</i>
2009	Tau Beta Pi, <i>UC San Diego</i>
2008 – 2010	Provost's Honors, <i>Revelle College, UC San Diego</i>
2005 – 2007	Duke of Edinburgh Bronze, Silver and Gold Awards

## PRESS

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Information is Beautiful Award Shortlist Nomination. *Kantar, November 2015.*

<http://www.informationisbeautifulawards.com/showcase?acategory=free-tool&action=index&award=2015&controller=showcase&page=1&pcategory=long-list&type=awards>

Apropose Closes \$1.875M Funding Round Led by NEA and Andreessen Horowitz. *PR Newswire, September 2014.*

<http://www.prnewswire.com/news-releases/apropose-closes-1875m-funding-round-led-by-nea-and-andreessen-horowitz-274728751.html>

10 Significant Visualization Developments: January to June 2014. *Visualizing Data, August 2014.*

<http://www.visualisingdata.com/index.php/2014/08/10-significant-visualisation-developments-january-to-june-2014/>

Movable Type Experts Team Up on Melody, an Open Source Publishing Platform. *Techcrunch, June 2009.*

<http://techcrunch.com/2009/06/25/movable-type-experts-team-up-on-melody-an-open-source-publishing-platform/>

Why We Call it a “Community”. *Movable Type, August 2007.*

<http://www.movabletype.com/blog/2007/02/why-we-call-it-a-community.html>

REFERENCES

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**Jeffrey Heer**

Associate Professor of Computer  
Science and Engineering  
*University of Washington*  
jheer@uw.edu

**Scott R. Klemmer**

Associate Professor of Cognitive  
Science & Computer Science and  
Engineering  
*University of California, San Diego*  
srk@ucsd.edu

**Wendy E. Mackay**

Research Director  
*INRIA Saclay, France*  
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**Maneesh Agrawala**

Professor of Computer Science  
*Stanford University*  
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**Martin Wattenberg**

Research Scientist  
*Google Research*  
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**James D. Hollan**

Professor of Cognitive Science &  
Computer Science and Engineering  
*University of California, San Diego*  
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**Michel Beaudouin-Lafon**

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*Université Paris-Sud, France*  
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