Arvind Satyanarayan

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EDUCATION

Ph.D. Computer Science
Stanford University, 2017
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

Augmenting Code with In Situ Visualizations to Aid Program Understanding. Jane Hoffswell, Arvind Satyanarayan, Jeffrey Heer. *Proc. ACM Human Factors in Computing Systems (CHI),* April 2018. [26% Acceptance Rate]

The Building Blocks of Interpretability. Chris Olah, Arvind Satyanarayan, Ian Johnson, Shan Carter, Ludwig Schubert, Katherine Ye, Alexander Mordvintsev. *Distill,* March 2018.

Vega-Lite: A Grammar of Interactive Graphics. Arvind Satyanarayan, Dominik Moritz, Kanit Wongsuphasawat, Jeffrey Heer. *IEEE Trans. Visualization & Computer Graphics (Proc. InfoVis '16),* January 2017. [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 Hoffwell, Jeffrey Heer. *IEEE Trans. Visualization & Computer Graphics (Proc. InfoVis '15),* January 2016. [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

The CHI 2013 Interactive Schedule. Arvind Satyanarayan, Daniel Strazzulla, Clemens Klokmose, 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

July 2018 – Present **Assistant Professor**, *MIT EECS/CSAIL.*

Oct 2017 – June 2018 **Postdoctoral Research Scientist**, *Google Brain*

2011 – 2017 **Graduate Research Assistant**, *Interactive Data Lab, Stanford Univ./Univ. of Washington*
With Prof. Jeffrey Heer

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

- Developed a prototype visualization substrate to enable collaborative interactive visual analysis between multiple users using heterogeneous devices and a large display wall.

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 **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

The Building Blocks of Interpretability
May 2018 emlyon business school, *Lyon, France*

Vega-Lite: A Grammar of Interactive Graphics
April 2017 OpenVis Conf, *Boston, MA*

Declarative Interaction Design for Data Visualization
April 2017 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

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

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

Reviewing	IEEE VIS 2014–2018, EuroVis 2014–2017, IEEE TVCG 2015–2018, ACM UIST 2014–2016, ACM CHI 2013–2018, ACM IUI 2012–2015, IEEE PacificVis 2016.
	Recognition for **exceptional reviews**: CHI 2017, VIS 2017.
Diversity Committees	IEEE VIS 2018. Information+ 2018.
Program Committees	OpenVis Conf 2016–2018. ACM CHI 2016 Late-Breaking Work. Information+ 2018.
Editor	Distill (http://distill.pub)
2018	Program Co-Chair, *OpenVis Conf*
2013	Interactive Schedule Chair, *CHI 2013 Organizing Committee*
2009 – 2011	Resident Advisor, *Revelle College, UC San Diego*
2010 – 2011	Student Conduct Code Re-write Workgroup Student Representative, *UC San Diego*
2010 – 2011	Housing, Dining, Hospitality Advisory Committee Student Representative, *UC San Diego*
Summer 2010	Parent Orientation Leader, *Revelle College, UC San Diego*
2009 – 2010	Revelle College Senator, *Associated Students, UC San Diego*
2008 – 2009	Director of Communications, *Revelle College Council, UC San Diego*

AWARDS & HONORS

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, *Stanford University*
2011	Outstanding Senior, *UC San Diego Alumni Association*
2011	Phi Beta Kappa, *UC San Diego*
2010	Undergraduate Summer Research Scholar, *Calit2, UC San Diego*
2009, 2010	Ernest Mort Award for Excellence in Leadership, *Revelle College, UC San Diego*
2009	Tau Beta Pi, *UC San Diego*
2008 – 2010	Provost's Honors, *Revelle College, UC San Diego*
2005 – 2007	Duke of Edinburgh Bronze, Silver and Gold Awards

PRESS

Google Researchers Are Learning How Machines Learn. *Cade Metz, The New York Times, March 2018*.
https://www.nytimes.com/2018/03/06/technology/google-artificial-intelligence.html

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

Jeffrey Heer
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University of Washington
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Professor of Computer Science
Stanford University
maneesh@cs.stanford.edu

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