Arjun Srinivasan

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SUMMARY

I am a **Human-Computer Interaction researcher specializing in Intelligent Systems and Data Visualization**. Drawing upon techniques from multimodal and mixed-initiative interfaces, I currently focus on designing expressive and intelligent tools for data science and human-data interaction.

EDUCATION

Georgia Institute of Technology, Atlanta, Georgia, USA

- Ph.D. in Computer Science — Aug 2016 – Jul 2020
  Thesis: "Combining Natural Language and Direct Manipulation for Human-Data Interaction through Visualizations" [🏆 **IEEE VGTC Best Dissertation Award**]
  Research areas: Human-Computer Interaction, Information Visualization
  Advisor: Dr. John Stasko
- M.S. in Computer Science — Aug 2014 – May 2016
  Specialization: Visual Analytics

R.V. College of Engineering, Bangalore, Karnataka, India

- B.E. in Information Science — Aug 2009 – Jun 2013

EXPERIENCE

Databricks, Seattle, Washington, USA

Software Engineer — Dec 2023 – Present

Building intelligent systems for visual data analysis and dashboard authoring.

- Working on natural language input and generation features as part of the Databricks Assistant in Lakeview Dashboards (blog).

Tableau Research, Seattle, Washington, USA

Senior Research Staff — Oct 2020 – Dec 2023

Conducted research on human-computer interaction and information visualization.

- Filed 15+ patents and published 10+ research papers in the areas of natural language & multimodal interaction, accessibility, and visualization recommendation.
- Built prototypes and conducted user research to inform the Einstein Copilot for Tableau (blog) and accessibility-focused features including alt-text generation (release note) and keyboard-based chart navigation (blog).

Microsoft Research, Redmond, Washington, USA

Research Intern, Mentor: Dr. Bongshin Lee — May 2019 – Aug 2019

Developed multimodal interfaces for data visualization with the EPIC (Extended Perception, Interaction & Cognition) Research Group.

Adobe Research, Seattle, Washington, USA

Research Intern, Mentor: Dr. Mira Dontcheva — May 2018 – Aug 2018

Explored user interface techniques to enhance discoverability of speech input in multimodal interfaces.

Microsoft Research, Redmond, Washington, USA

Research Intern, Mentor: Dr. Steven Drucker — May 2017 – Aug 2017

Designed and evaluated techniques to facilitate visual comparison in data visualization dashboards.

Salesforce.com, San Francisco, California, USA

Software Engineering Intern, Analytics Cloud — May 2015 – Aug 2015, May 2016 – Aug 2016

Developed a visualization system for real-time monitoring and diagnosis of service queues across data centers in a multi-tenant cloud architecture.

SAP Labs India, Bangalore, Karnataka, India

Associate Developer, SAP HANA Cloud Integration Jul 2013 – Apr 2014

Worked on R&D of Business Process Integration solutions on the cloud.

PUBLICATIONS **JOURNAL/ CONFERENCE**

A. Srinivasan, T. Harshbarger, D. Hilliker, and J. Mankoff. "Azimuth: Designing Accessible Dashboards for Screen Reader Users." *ACM SIGACCESS Conference on Computers and Accessibility (ASSETS)*, 2023. [🎗 **Best Paper Nominee**]

A. Srinivasan and V. Setlur, "BOLT: A Natural Language Interface for Dashboard Authoring." *Proceedings of EuroVis (Short Papers)*, 2023.

J. Purich*, A. Srinivasan*, M. Correll, L. Battle, V. Setlur, and A. Crisan. "Toward a Scalable Census of Dashboard Designs in the Wild: A Case Study with Tableau Public." *arXiv*, 2023. *equal contribution.

A. Srinivasan and V. Setlur. "Snowy: Recommending Utterances for Conversational Visual Analysis." *ACM Symposium on User Interface Software and Technology (UIST)*, 2021.

A. Srinivasan, N. Nyapathy, B. Lee, S.M. Drucker, and J. Stasko. "Collecting and Characterizing Natural Language Utterances for Specifying Data Visualizations." *ACM Conference on Human Factors in Computing Systems (CHI)*, 2021.

A. Narechania*, A. Srinivasan*, and J. Stasko. "NL4DV: A Toolkit for Generating Analytic Specifications for Data Visualization from Natural Language Queries." *IEEE Transactions on Visualization and Computer Graphics*, 2021. *equal contribution.

A. Srinivasan, B. Lee, and J. Stasko. "Interweaving Multimodal Interaction with Flexible Unit Visualizations for Data Exploration." *IEEE Transactions on Visualization and Computer Graphics*, 2020.

A. Srinivasan, B. Lee, N.H. Riche, S.M. Drucker, and K. Hinckley. "InChorus: Designing Consistent Multimodal Interactions for Data Visualization on Tablet Devices." *ACM Conference on Human Factors in Computing Systems (CHI)*, 2020 [🎗 **Best Paper Honorable Mention**].

A. Srinivasan, S.M. Drucker, A. Endert, and J. Stasko. "Augmenting Visualizations with Interactive Data Facts to Facilitate Interpretation and Communication." *IEEE Transactions on Visualization and Computer Graphics*, 2019.

A. Srinivasan, M. Dontcheva, E. Adar, and S. Walker. "Discovering Natural Langauge Commands in Multimodal Interfaces." *ACM Conference on Intelligent User Interfaces (IUI)*, 2019.

F. Hohman*, A. Srinivasan*, S.M. Drucker. "TeleGam: Combining Visualization and Verbalization for Interpretable Machine Learning." *IEEE Visualization Conference (VIS) Short Papers*, 2019. *equal contribution.

A. Srinivasan and J. Stasko. "Orko: Facilitating Multimodal Interaction for Visual Exploration and Analysis of Networks." *IEEE Transactions on Visualization and Computer Graphics*, 2018.

A. Srinivasan, H. Park, A. Endert, and R. Basole. "Graphiti: Interactive Specification of Attribute-based Edges for Network Modeling and Visualization." *IEEE Transactions on Visualization and Computer Graphics*, 2018.

A. Srinivasan, M. Brehmer, B. Lee and S.M. Drucker. "What's the Difference?: Evaluating Variants of Multi-Series Bar Charts for Visual Comparison Tasks." *ACM Conference on Human Factors in Computing Systems (CHI)*, 2018.

A. Srinivasan and J. Stasko, "Natural Language Interfaces for Data Analysis with Visualization: Considering What Has and Could Be Asked." *Proceedings of EuroVis (Short Papers)*, 2017.

J. Kim, A. Srinivasan, N.W. Kim, and Y.S. Kim. "Exploring Chart Question Answering for Blind and Low Vision Users." *ACM Conference on Human Factors in Computing Systems (CHI)*, 2023.

V. Setlur, A. Kanyuka, and A. Srinivasan. "Olio: A Semantic Search Interface for Data Repositories." *ACM Symposium on User Interface Software and Technology (UIST)*, 2023.

N. Sultanum and A. Srinivasan. "DataTales: Investigating the use of Large Language Models for Authoring Data-Driven Articles." *IEEE Visualization Conference (VIS) Short Papers*, 2023.

A. Pandey, A. Srinivasan, and V. Setlur. "MEDLEY: Intent-based Recommendations to Support Dashboard Composition." *IEEE Transactions on Visualization and Computer Graphics*, 2022 [**Best Paper Honorable Mention**].

Y.H. Kim, B. Lee, A. Srinivasan, and E.K. Choe. "Data@Hand: Fostering Visual Exploration of Personal Data on Smartphones Leveraging Speech and Touch Interaction." *ACM Conference on Human Factors in Computing Systems (CHI)*, 2021 [**Best Paper Honorable Mention**].

A. Saktheeswaran, A. Srinivasan, J. Stasko. "Touch? Talk? or Touch and Talk? Investigating Multimodal Interaction for Visual Network Exploration and Analysis." *IEEE Transactions on Visualization and Computer Graphics*, 2020.

M. Agarwal, A. Srinivasan, J. Stasko. "VisWall: Visual Data Exploration Using Direct Combination on Large Touch Displays." *IEEE Visualization Conference (VIS) Short Papers*, 2019.

B. Lee, A. Srinivasan, J. Stasko, M. Tory, and V. Setlur. "Multimodal Interaction for Data Visualization." *Workshop at the International Conference on Advanced Visual Interfaces (AVI)*, 2018.

J. Thompson, A. Srinivasan, and J. Stasko. "Tangraphe: Interactive Exploration of Network Visualizations using Single Hand, Multi-touch Gestures." *International Conference on Advanced Visual Interfaces (AVI) Short Papers*, 2018.

R. Basole, A. Srinivasan, H. Park, and S. Patel. "ecoxight: Discovery, Exploration and Analysis of Business Ecosystems using Interactive Visualization." *ACM Transactions on Management Information Systems (TMIS)*, 2018

B. Saket, A. Srinivasan, E. Ragan, and A. Endert. "Evaluating Interactive Graphical Encodings for Data Visualization." *IEEE Transactions on Visualization and Computer Graphics*, 2017.

R. Basole, T. Major, and A. Srinivasan "Understanding Alliance Portfolios using Visual Analytics." *ACM Transactions on Management Information Systems, Vol. 8, No. 2, Article 1*, 2017.

BOOKS

B. Lee, A. Srinivasan, P. Isenberg, and J. Stasko. "Post-WIMP Interaction for Information Visualization." *Foundations and Trends® in Human–Computer Interaction*, 2021.

WORKSHOPS

A. Srinivasan, B. Lee, and J. Stasko. "Facilitating Spreadsheet Manipulation on Mobile Devices Leveraging Speech." *Data Visualization on Mobile Devices workshop at ACM CHI*, 2018.

SB. Karthik, A. Srinivasan, N. Elmqvist, and J. Stasko. "Affordances of Input Modalities for Visual Data Exploration in Immersive Environments." *IEEE VIS Workshop on Immersive Analytics*, 2017.

R. Basole, T. Major, and A. Srinivasan. "Sequencing the Enterprise Genome: Interactive Visual Analysis of Multi-Dimensional Alliance Activities of Global Enterprises." *business|vis workshop at IEEE VIS*, 2015.

POSTERS

A. Das, A. Srinivasan, and J. Stasko. "CricVis: Interactive Visual Exploration and Analysis of Cricket Matches." *IEEE VIS*, 2017.

A. Srinivasan, and J. Stasko. "NL4DV: Toolkit for Natural Language Driven Data Visualization." *IEEE VIS*, 2016.

TECHNICAL SKILLS

Programming Languages

Most experienced with: JavaScript, Python, HTML/CSS, Java, SQL
Familiar with: TypeScript, Node.js, R, C#, C++
Dabbled in: C, PHP, Perl, Processing

Libraries/Frameworks

d3.js, numpy, NLTK, scipy, jQuery, Flask, Express, React, Svelte

ACHIEVEMENTS / AWARDS

Winner of Georgia Tech's CRIDC Poster Competition.	2020
Georgia Tech College of Computing "Outstanding Graduate Research Assistant" Award.	2018
Winner of Salesforce.com's Analytics Innovation Challenge.	2016
National finalist of Walmart's Collegiate Innovators Challenge.	2014
SAP Global Peer Recognition award.	2013
Winner of SAP Osmosis.	2013
National finalist (1st runner-up) of SAP BizTech India.	2012
Winner of Microsoft India's Windows 8 hackathon.	2012
National finalist of SAP Dashboard Design Challenge India.	2011

ACADEMIC SERVICE

Organization Committee

IEEE VIS Workshop on Exploring Opportunities and Challenges for Natural Language Techniques to Support Visual Analysis (NLVIZ)	2021-Present
AVI Workshop on Multimodal Interaction For Data Visualization	2018

Program Committee

IEEE Conference on Visualization & Visual Analytics (VIS)	2022-Present
EuroVis	2022-Present
ACM Symposium on User Interface Software and Technology (UIST)	2022-Present
ACM International Conference on Multimodal Interaction (ICMI)	2020-2023
ACM Intelligent User Interfaces Conference (Posters and Demos)	2020
Workshop on Visualization for AI Explainability (VISxAI) at IEEE VIS	2019-2021
KDD Workshop on Interactive Data Exploration and Analytics (IDEA)	2018

Reviewer 2016-Present

IEEE VIS, ACM CHI, ACM UIST, ACM ISS, EuroVis, MobileHCI, ACM ICMI, ACM IUI, IEEE TVCG, IEEE CG&A, INTERACT

Awarded Special Recognition for Outstanding Reviews

CHI 2024, CHI 2022, ISS 2020, EuroVis 2019, MobileHCI 2019

Teaching Assistant

CS7450 Information Visualization	Fall 2018
CS8803 Data Visualization: Principles & Applications	Spring 2017