Sriram Karthik **Badam**

sbadam@umd.edu | +1-765-491-1767 | @karthik_badam | infoviz.me

Contact

163 Westway 102
Greenbelt, MD 20770
USA
+1 (765) 491 1767
sbadam@umd.edu

Links

infoviz.me
scholar://karthikbadam
linkedin://karthikbadam

Broad Interests

Visualization | Visual Analytics
Human-Computer Interaction
Machine Learning

Specific Interests

Collaborative Visualization
Post-WIMP Interaction
Mixed-Initiative Interaction

Technologies

C | C++ | Java
Perl | PHP | Python
NodeJS | JavaScript
HTML5 | CSS3
Hadoop | MongoDB | MySQL

Education

Since 2014 — **Ph.D.** in Computer Science — University of Maryland, College Park, MD, USA
Thesis title: Enabling **Collaborative Visual Analysis** of **Big Data**

2012–2014 — **M.S.** in Computer Engineering — Purdue University, West Lafayette, IN, USA
Thesis title: Developing digital media platforms for **early design**

2008–2012 — **B.Tech.** in Computer Science — Indian Institute of Technology Hyderabad, India
Major project: Developed **mobile applications** to support rescue and recovery operations in **post-disaster situations** through a **novel data synchronization protocol** using multi-hop, peer-to-peer communication.

Research Experience

Since 2014 — University of Maryland — College Park, MD, USA
Graduate Research Assistant
As a GRA, I work on funded projects under the supervision of Dr. Niklas Elmqvist, an associate professor in the College of Information Studies at UMD. My research involves leveraging **visualization and visual analytics** techniques for **user-guided understanding** of **big datasets**. I focus on creating **efficient collaborations** between **analysts** and their **devices** to understand data visually and make complex decisions. I work in the Human-Computer Interaction Lab (HCIL) at UMD.

2012–2014 — Purdue University — West Lafayette, IN, USA
Research Assistant
My research focused on developing a **sketching platform** for **early design**, called **skWiki** to enable design teams efficiently share their ideas in the form of sketches. I worked with the Purdue visualization (PiVOt Lab) and CDesign research groups.

Publications

Journal Papers (peer-reviewed)

J5 S. Chandrasegaran, S. K. Badam, L. Kisselburgh, K. Peppler, N. Elmqvist, K. Ramani. VizScribe: A Visual Analytics Approach to Understand Designer Behavior. *International Journal of Human-Computer Studies*, in review.

J4 S. K. Badam, F. Amini, N. Elmqvist, P. Irani. **Proxemic Lens**: Multi-User Visual Exploration using Proxemics and Gestural Interaction. *IEEE Transactions on Visualization & Computer Graphics*, in review.

J3 S. K. Badam, E. R. Fisher, N. Elmqvist. **Munin**: A Peer-to-Peer Middleware for Ubiquitous Analytics and Visualization Spaces. *IEEE Transactions on Visualization & Computer Graphics*, 21(2): 215-228, 2015.

J2 J. C. Roberts, P. D. Ritsos, S. K. Badam, D. Brodbeck, J. Kennedy, N. Elmqvist. Visualization Beyond the Desktop – The Next Big Thing. *IEEE Computer Graphics & Applications*, 34(6): 26-34, 2014.

J1 E. R. Fisher, S. K. Badam, N. Elmqvist. Designing Peer-to-Peer Distributed User Interfaces: Case Studies on Building Distributed Applications. *International Journal of Human-Computer Studies*, 72(1): 100-110, 2014.

Techniques

TimeFork: interactive prediction
VisFer: visual data transfer
Proxemic Lens: 3D interaction

Systems

PolyChrome: collaborative viz.
Munin: ubiquitous analytics
skWiki: collaborative sketching

Applications

SketchBox: sketching on Android

Conference Papers (peer-reviewed)

C5 S. K. Badam, J. Zhao, S. Sen, N. Elmqvist, D. S. Ebert. **TimeFork**: Interactive Prediction of Time Series. In *Proceedings of the ACM Conference on Human Factors in Computing Systems*, accepted for publication, 2016. [23.4% acc. rate]

C4 S. K. Badam, N. Elmqvist. **PolyChrome**: A Cross-Device Framework for Collaborative Web Visualization. In *Proceedings of the ACM Conference on Interactive Tabletops and Surfaces*, pp. 109-118, 2014. [29% acc. rate]

C3 S. Chandrasegaran, S. K. Badam, Z. Zhao, N. Elmqvist, L. Kisselburgh, K. Ramani. Collaborative Sketching with skWiki: A Case Study, In *Proceedings of the ASME IDETC/CIE Conference*, 2014.

C2 S. K. Badam, S. Chandrasegaran, N. Elmqvist, K. Ramani. Tracing and Sketching Performance using Blunt-Tipped Styli on Direct-Touch Tablets. In *Proc. of the ACM Conference on Advanced Visual Interfaces*, pp. 193–200, 2014. [31/110, 28% acc. rate]

C1 Z. Zhao, S. K. Badam, S. Chandrasegaran, D. G. Park, N. Elmqvist, L. Kisselburgh, K. Ramani. **skWiki**: A Multimedia Sketching System for Collaborative Creativity. In *Proceedings of the ACM Conference on Human Factors in Computing Systems*, pp. 1235–1244, 2014. [471/2064, 22.8% acc. rate]

Technical Reports

R1 S. Sen, S. K. Badam, N. Elmqvist. VisHive: Creating Ad-hoc Computational Clusters using Mobile Devices in Web-based Visualization. *HCIL Technical Report*, 2016.

Workshop Papers

W2 S. K. Badam, N. Elmqvist. Design Considerations for Mid-Air Interaction with Holographic Projections. Workshop paper to be presented at Mid-Air Haptics and Displays: Systems for Un-instrumented Mid-Air Interactions at ACM CHI 2016.

W1 S. K. Badam, N. Elmqvist. Projector Display Systems in Visualization. Workshop paper presented at Death of the Desktop: Envisioning Visualization without Desktop Computing at IEEE VIS 2014.

Posters

P3 L. Kisselburgh, N. Zhou, S. Chandrasegaran, S. K. Badam, N. Elmqvist, K.Peppler, K. Ramani. Creative Collaboration and Flow: Validating the Use of Trace Data to Measure Dynamics of Creative Flow in Collaborative Design Teams. Poster presented at International Conference on Computer Supported Collaborative Learning (CSCL), 2015.

P2 N. Zhou, L. Kisselburgh, S. Chandrasegaran, S. K. Badam, N. Elmqvist, K. Peppler, K. Ramani. Using Real-time Trace Data to Predict Collaboration Quality and Creative Fluency in Design Teams. Poster presented at International Conference on Computer Supported Collaborative Learning (CSCL), 2015.

P1 S. K. Badam, J. Zhao, N. Elmqvist, D. S. Ebert. TimeFork: Mixed Initiative Time-Series Prediction. Poster presented at IEEE Conference on Visual Analytics Science and Technology (VAST), 2014.

Invited Talks and Conference Presentations

T7 "**Visualization Beyond the Desktop** - The Next Big Thing", IEEE VIS 2015, Chicago, USA, Oct 30, 2015.

T6 "QR-Vis: **Embodied Interaction** for Cross-Device Visualization", 32nd Annual HCIL Symposium, College Park, Maryland, USA, May 28, 2015.

T5 "Cross-Device Frameworks for **Collaborative Visualization**", HCIL Brown Bag Lunch Talk Series, College Park, Maryland, USA, Feb 5, 2015.

T4 "PolyChrome: A Cross-Device Framework for **Collaborative Web Visualization**", ACM ITS 2014, Dresden, Germany, Nov 18, 2014.

T3 "Munin: A Peer-to-Peer Middleware for **Ubiquitous Analytics** and Visualization Spaces", IEEE VIS 2014, Paris, France, Nov 12, 2014.

T2 "Multimodal **Interaction Design** for **Ubiquitous Analytics**", IEEE VIS 2014 Doctoral Colloquium, Paris, France, Nov 8, 2014.

T1 "**Tracing and Sketching** Performance using Blunt-tipped Styli on **Direct-Touch Tablets**", ACM AVI 2014, Como, Italy, May 29, 2014.

Projects

Ubiquitous Analytics
V-ICED
skWiki

Hobbies

Sketching, Tennis,
Rock climbing

Awards

- Awarded Human-Computer Interaction Consortium travel grant for attending HCIC 2015 workshop on HCI theories.
- Awarded University of Tokyo - Mori Seiki Co. IIT Undergraduate Scholarship for the years 2009-10, 2010-11 (Also known as 'Todai IIT Scholarship').

Contributions to Funded Projects

- Ubilytics: Harnessing Existing Device Ecosystems for Anywhere Sensemaking.
  (PI: Elmqvist, N.) National Science Foundation.
  Relevant publications: J4, J3, J1, C4, R1.
- V-ICED: Visually-Integrated Cyber Exploratorium for Design.
  (PI: Ramani, K.; Co-PIs: Elmqvist, N., Kisselburgh, L.) National Science Foundation.
  Relevant publications: J5, C3, C2, C1, P3, P2.
- Natural Interaction Spaces for Early Engineering Design.
  (PI: Elmqvist, N.; Co-PI: Ramani, K.) National Science Foundation.
  Relevant publications: C1.

Service

- Student supervision: Co-supervised Shivalik Sen, a 4^{th} year undergraduate intern from BITS Pilani Goa Campus, India, on developing adhoc computational clusters using mobile phones to create and manipulate big data visualizations.
  Relevant publications: R1
- Reviewer for HCI and visualization conferences: ACM ITS 2015, ACM MobileHCI 2014, IEEE SciVis 2013, and IEEE VAST 2015.
- Reviewer for IEEE VAST challenge 2014-2015.
- Reviewer for IEEE VIS posters 2015.

Press

- NSF Discovery, June 2015. "Tools for real-time visual collaboration: Indiana and Purdue University Professors design cyberlearning system to make sharing ideas easier".
  Relevant publications: C3, C1.
- Huffington Post, June 2015. "7 Cyberlearning technologies transforming education".
  Relevant publications: C3, C1.
- MIT Technology Review, April 10, 2014. "Startup Makes One App Run on Many Screens".
  Relevant publications: C4.

Teaching Experience

- Supervised freshman C-programming lab sessions at Indian Institute of Technology Hyderabad in 2009-10.

References

Available upon request.