Chris Bryan
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Research Areas

Data Visualization, Human-computer Interaction, Virtual and Augmented Reality

Education

09/2012 – 07/2018	**Ph.D. in Computer Science, University of California, Davis.** Dissertation: *Advanced Techniques and Cognitive Considerations for Explanatory Visualization and Data Storytelling.* Committee: Kwan-Liu Ma (advisor), Zhou Yu, Michael Neff
08/2004 – 05/2008	**B.S. *cum laude* in Computer Science (Honors College), University of Arkansas, Fayetteville.** (Minors: *Mathematics, Spanish*) Thesis: *A Performance and Productivity Study using MPI, Titanium, and Fortress* Advisor: Dr. Amy Apon (now at Clemson University)

Appointments & Prior Employment

08/2018 – …	**Assistant Professor.** School of Computing, Informatics, and Decision Systems Engineering, Arizona State University (Tempe, AZ).
01/2018 – 05/2018	**Adjunct Professor.** Department of Computer Science, University of San Francisco (San Francisco, CA).
09/2012 – 07/2018	**Graduate Student Researcher.** Visualization & Interface Design Innovation (VIDi) Group, University of California, Davis (Davis, CA).
06/2017 – 09/2017	**Graduate Student Intern.** Center for Applied Scientific Computing (CASC), Lawrence Livermore National Laboratory (Livermore, CA).
06/2013 – 09/2016	**Graduate Student Intern.** Data Science at Scale (DSS) Group, Los Alamos National Laboratory (Los Alamos, NM).
11/2009 – 06/2012	**Programmer Analyst.** Integrated Capacity Solutions (ICS) Division, J.B. Hunt Transport and Logistics (Lowell, AR).

Research Support

2020 – 2021	(PI) "Development of a Virtual Reality Experience for Treatment Planning and for Patient and Family Education," *Phoenix Children's Hospital*, $56,871.
2019 – 2021	(Co-PI) "Collaborative Research: High-Dimensional Spatio-Temporal Data Science for a Resilient Power Grid: Towards Real-Time Integration of Synchrophasor Data," *National Science Foundation*, $1,330,040 (PI: Lalitha Sankar, personal share: 20%).

Publications

Peer-reviewed Full Papers (Journal Articles & Conference Proceedings)

(1) **Bryan**, **C.**, Mishra, A., Shidara, H., & Ma, K.-L. (2020). Analyzing Gaze Behavior for Text-embellished Narrative Visualizations under Different Task Scenarios. *Visual Informatics*, *4*(3), 41–50.

(2) Wang, X., **Bryan**, **C.**, Li, Y., Pan, R., Liu, Y., Chen, W., & Ma, K.-L. (2020). Umbra: A Visual Analysis Approach for Defense Construction Against Inference Attacks on Sensitive Information. *IEEE Transactions on Visualization and Computer Graphics*.

(3) Chandrasegaran, S., **Bryan**, **C.**, Shidara, H., Chuang, T.-Y., & Ma, K.-L. (2019). TalkTraces: Real-Time Capture and Visualization of Verbal Content in Meetings. In *Proceedings of ACM CHI Conference on Human Factors in Computing Systems (CHI 2019)*.

(4) Wang, X., Chen, W., Chou, J.-K., **Bryan**, **C.**, Guan, H., Chen, W., … Ma, K.-L. (2019). GraphProtector: A Visual Interface for Employing and Assessing Multiple Privacy Preserving Graph Algorithms. *IEEE Transactions on Visualization and Computer Graphics*, *25*(1), 193–203.

(5) Chou, J.-K., **Bryan**, **C.**, Li, J., & Ma, K.-L. (2018). An Empirical Study on Perceptually Masking Privacy in Graph Visualization. In *IEEE Symposium on Visualization for Cyber Security (VizSec)*.

(6) Shi, Y., **Bryan**, **C.**, Bhamidipati, S., Zhao, Y., Zhang, Y., & Ma, K.-L. (2018). MeetingVis: Visual Narratives to Assist in Recalling Meeting Context and Content. *IEEE Transactions on Visualization and Computer Graphics*, *24*(6), 1918–1929. **PacificVis 2018 Honorable Mention**.

(7) Xu, S., **Bryan**, **C.**, Li, J. K., Zhao, J., & Ma, K.-L. (2018). Chart Constellations: Effective Chart Summarization for Collaborative and Multi-User Analyses. In *Computer Graphics Forum* (Vol. 37, *3*, pp. 75–86).

(8) **Bryan**, **C.**, Guterman, G., Ma, K.-L., Lewin, H., Larkin, D., Kim, J., … Farre, M. (2017). Synteny Explorer: An Interactive Visualization Application for Teaching Genome Evolution. *IEEE Transactions on Visualization and Computer Graphics*, *23*(1), 711–720.

(9) **Bryan**, **C.**, Ma, K.-L., & Woodring, J. (2017). Temporal Summary Images: An Approach to Narrative Visualization via Interactive Annotation Generation and Placement. *IEEE Transactions on Visualization and Computer Graphics*, *23*(1), 511–520.

(10) Chou, J.-K., **Bryan**, **C.**, & Ma, K.-L. (2017). Privacy Preserving Visualization for Social Network Data with Ontology Information. In *IEEE Pacific Visualization Symposium (PacificVis)* (pp. 11–20).

(11) Chu, J., **Bryan**, **C.**, Shih, M., Ferrer, L., & Ma, K.-L. (2017). Navigable Videos for Presenting Scientific Data on Affordable Head-mounted Displays. In *Proceedings of the 8th ACM on Multimedia Systems Conference* (pp. 250–260).

(12) **Bryan**, **C.**, Wu, X., Mniszewski, S., & Ma, K.-L. (2015). Integrating Predictive Analytics into a Spatiotemporal Epidemic Simulation. In *IEEE Conference on Visual Analytics Science and Technology (VAST)* (pp. 17–24). IEEE.

(13) Mniszewski, S. M., Manore, C., **Bryan**, **C.**, Del Valle, S. Y., & Roberts, D. (2014). Towards a hybrid agent-based model for mosquito borne disease. In *Proceedings of the 2014 Summer Simulation Multiconference*. Society for Computer Simulation International.

(14) **Bryan**, **C.**, Ma, K.-L., & Fu, Y.-C. (2013). An Interactive Visualization Interface for Studying Egocentric, Categorical, Contact Diary Datasets. In *Proceedings of the 2013 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining* (pp. 771–778).

Peer-reviewed Short Papers & Other

(1) Arunkumar, A., Mishra, S., Sachdeva, B., Baral, C., & **Bryan**, **C.** (2020a). Real-Time Visual Feedback for Educative Benchmark Creation: A Human-and-Metric-in-the-Loop Workflow. In *NeurIPS 2020 Workshop on Human And Model in the Loop Evaluation and Training Strategies*.

(2) Arunkumar, A., Mishra, S., Sachdeva, B., Baral, C., & **Bryan**, **C.** (2020b). VAIDA: An Educative Benchmark Creation Paradigm using Vi- sual Analytics for Interactively Discouraging Artifacts, In *NeurIPS 2020 Crowd Science Workshop: Remoteness, Fairness, and Mechanisms as Challenges of Data Supply by Humans for Automation*.

(3) Huang, J., Mishra, A., Arunkumar, A., & **Bryan**, **C.** (2020). TotemFinder: A Visual Analytics Approach for Image-based Key Players Identification. In *2019 IEEE Conference on Visual Analytics Science and Technology (VAST)*. **VAST Challenge 2019 Honorable Mention**.

(4) Mishra, S., Arunkumar, A., Sachdeva, B., **Bryan**, **C.**, & Baral, C. (2020a). DQI: A Guide to Benchmark Evaluation. In *ICML 2020 Workshop on Uncertainty and Robustness in Deep Learning*.

(5) Mishra, S., Arunkumar, A., Sachdeva, B., **Bryan**, **C.**, & Baral, C. (2020b). Is High Quality Data All You Need?, In *NeurIPS 2020 Pre-registration Workshop*.

(6) Mishra, S., Arunkumar, A., Sachdeva, B., **Bryan**, **C.**, & Baral, C. (2020c). Our Evaluation Metric Needs an Update to Encourage Generalization. In *ICML 2020 Workshop on Uncertainty and Robustness in Deep Learning*.

(7) Shidara, H., **Bryan**, **C.**, Kwon, O.-H., & Ma, K.-L. (2018). North Korea: Real or Paper Tiger? In *IEEE PacificVis 2018 Storytelling Contest*.

(8) **Bryan**, **C.**, Dasu, K., Divakarla, S., & Ma, K.-L. (2017). Summarizing the U.S. Presidential Election Day 2016. In *IEEE PacificVis 2017 Storytelling Contest*.

(9) **Bryan**, **C.**, Mniszewski, S., & Ma, K.-L. (2014). Integrating Predictive Visualization with the Epidemic Disease Simulation System. In *IEEE VIS 2014 Workshop on Visualization for Predictive Analytics*.

(10) **Bryan**, **C.**, Emeneker, W., & Apon, A. (2008). A Performance and Productivity Study using MPI, Titanium, and Fortress. In *IEEE International Conference on High Performance Computing (HiPC08) Student Symposium*.

Invited Talks

⚑ Invited and Public Talks

Feb 2020	ASU Tableau User Group	*Human-centered Visualization Design*
July 2019	Los Alamos National Laboratory	*Interactive Visualization for Exploring and Explaining Complex Data*
Nov 2019	SFIS Unplugged	*Visualization of Complex Data for Non-experts*
March 2018	University of San Francisco	*From Explanatory to Exploratory Visualization*
March 2016	UC Davis RISE Symposium	*Developing New Visual Approaches that Provide Insight into Scientific and Social Media Data*

⚑ Conference and Workshop Talks

Oct 2018	IEEE VizSec (Berlin, Germany)	
April 2018	IEEE Pacific Visualization Symposium (Kobe, Japan)	
June 2018	EuroGraphics Conference on Visualization (Brno, Czech Republic)	
June 2017	ACM Multimedia Systems Conference (Taipei, Taiwan)	
April 2017	IEEE Pacific Visualization Symposium (Seoul, South Korea)	
Oct 2016	IEEE Visualization Conference (Baltimore, MD)	
Oct 2015	IEEE Visualization Conference (Chicago, IL)	
Nov 2014	IEEE Visualization Conference (Paris, France)	
Aug 2013	IEEE/ACM International Conference on Advances in Social Network Analysis and Mining (Niagara Falls, Canada)	

Teaching Experience

🔖 Arizona State University

Fall 2020	CSE 578: Data Visualization	173 students
	CSE 494: Data Visualization	94 students
	ASU 101: The ASU Experience	49 students (3 sections)
Fall 2019	CSE 578: Data Visualization	126 students
Spring 2019	CSE 310: Algorithms & Data Structures	128 students
Fall 2018	CSE 578: Data Visualization	128 students

🔖 University of San Francisco

Spring 2017	CS 212: Software Development	30 students

🔖 University of California, Davis

Spring 2016	ECS 163: Information Interfaces	52 students

Student Mentoring

🔖 Ph.D. Students

2019 – …	Aditi Mishra
2019 – …	Jinbin Huang
2020 – …	Anjana Arunkumar
2021 – …	Michael Kintscher

🔖 Masters Students

2019 – 2020	Michael Kintscher (Thesis: *Exploring the Impact of Augmented Reality on Collaborative Decision-Making in Small Teams*)

🔖 Undergraduate Students

Barrett Honors College Thesis Advisor

2020 – 2021	Shashank Ginjpalli (Thesis: *Modeling the Complexity of Sankey Diagrams*)
2019 – 2020	Avi Goodman (Thesis: *Predicting Outcome of a Pitch Given the Type of Pitch for any Baseball Scenario*)

ASU Fulton Undergraduate Research Initiative

2020 – 2021	Shashank Ginjpalli

Additional Research Assistantships

2019 – 2020	Danlin Li
2019	Sarthak Soni (IIIT Bangalore)

🔖 Thesis Committee Member (Ph.D.)

2021 – …	Chi Duan
2020 – …	Venkata Meduri
2019 – …	Tiankai Xie

🔖 Thesis Committee Member (MS)

| 2020 – 2021 | Kushal Reddy Papakannu (Thesis: *Examining User Engagement via Facial Expressions in Augmented Reality with Dynamic Time Warping*) |

External Service

🔖 Organizing Committee

| 2020 – … | IEEE Pacific Visualization Symposium (PacificVis) |
| 2019 – … | IEEE Symposium on Visualization for Cyber Security (VizSec) |

🔖 Program Committee

2018 – 2020	IEEE Symposium on Large Data Analysis and Visualization (LDAV)
2019 – 2020	IEEE Pacific Visualization Symposium (PacificVis)
2020	International Conference on Information Visualization Theory and Applications (IVAPP)
2020	ACM International Conference on Supporting Group Work (GROUP)
2019	IEEE Visualization Conference (SciVis Short Papers Tract)
2019	International Conference on Urban Intelligence and Applications (ICUIA)
2018 – 2020	IEEE International Conference On Big Data Service And Applications (BigDataService)
2018	International Symposium on Visual Computing (ISVC)

🔖 Conference Session Chairing

2019 – 2020	IEEE Symposium on Visualization for Cyber Security (VizSec)
2018 – 2019	IEEE Symposium on Large Data Analysis and Visualization (LDAV)
2019	IEEE Conference on Visual Analytics Science and Technology (VAST)

🔖 Journal Editing

| 2020 – … | Guest Associate Editor, IEEE Computer Graphics & Applications, Special Issue on Powering Visualization with Deep Learning (co-editors: Siwei Fu, Jian Zhao, Yingcai Wu) |

🔖 Major journals and conferences for which I review:

IEEE Visualization Conference (InfoVis, SciVis, VAST), IEEE Transactions on Visualization and Computing (TVCG), IEEE Pacific Visualization Symposium (PacificVis), IEEE Virtual Reality (VR), ACM Conference on Human Factors in Computing Systems (CHI), ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW)

🔖 Proposal Review Service

| 2019 – 2021 | National Science Foundation |

University & Department Service

2021 – …	**🔖 Fulton Undergraduate Research Initiative Reviewer**
	Fulton School of Engineering
2019 – …	**🔖 E2 Camps Speaker for Incoming Freshmen Students**
	Fulton School of Engineering

University & Department Service (continued)

2018 – …   🔖 **Graduate Admissions Committee**
School of Computing, Informatics, and Decision Systems Engineering