David Saffo

VP Applied Research Lead - Global Technology Applied Research - JPMorganChase

@ davidysaffo@gmail.com +1 248-330-7872 New York, New York https://dsaffo.dev/

Employment

VP Applied Research Lead

JPMorganChase Global Technology Applied Research

2022 – Present New York, NY

- Led stakeholder-driven research initiatives focused on the strategic integration of immersive technology and spatial computing across JPMorganChase's global business units, contributing scientific findings to academic journals, conferences, and workshops.
- Designed and developed an open-source web-based toolkit for immersive analytics, Anu.js, enabling bespoke immersive visualizations within enterprise environments and across applications and devices.
- Collaborated on the end-to-end execution of research initiatives, including immersive data analytics systems, AR-based training, spatial presentations, and hybrid conference environments, augmented remote meetings, and large-scale collaboration tools.
- Managed research interns and coordinated short-term research initiatives and resulting academic contributions.

Graduate Research Assistant

Northeastern University Data Visualization @ Khoury

2018 – 2023 Boston, MA

- Formalized novel HCI methodologies for information visualization and immersive analytics, investigating how both traditional and immersive technology can be leveraged to enhance human data comprehension, collaboration, and decision-making.
- Designed and implemented robust and novel research prototypes and applications suitable for end-user testing and use.
- Planned and conducted rigorous mixed-method evaluations to validate research prototypes, theories, and methodologies, resulting in peer-reviewed publications at top venues (e.g., IEEE VIS, ACM CHI), contributing to the state-of-the-art in human-computer interaction.
- Co-authored a diverse body of peer-reviewed research in collaboration with fellow researchers, contributing to work on topics in statistical methodologies, visualization design, collaboration, and immersive analytics to deliver comprehensive surveys and novel system evaluations.

Graduate Research Intern

University of Maryland Human-Computer Interaction Lab

Summer 2021 Remote

- Partnered with Dr. Niklas Elmqvist to spearhead research on cross-platform VR and desktop visualization collaboration, encompassing the end-to-end design, implementation, and execution of a collaborative qualitative user study.

Undergraduate Research Assistant

Loyola University Chicago Computer Science

2016 – 2018 Chicago, IL

Areas of Interest

- Information and Data Visualization
- Data Science and Applied AI
- Frameworks, Toolkits, and Pipelines
- Human Computer Interaction (HCI)
- Immersive Analytics
- Virtual and Augmented Reality (VR/AR)

More Information

Academic Record
https://scholar.google.com/citations?user=P6Uk92EAAAAJ&hl=en

Research Repositories
https://osf.io/yxw85

Code Repositories
https://github.com/dsaffo

Technical Skills

Programming & Markup Languages

- JavaScript, Python, C#, Java, Swift, C++
- HTML, CSS, Markdown, XML, LaTeX

Applications

- Data Visualization, Virtual and Augmented Reality, Multi-User Networking, Machine Learning, Statistical Analysis, Web Development, Mobile Development (iOS, Android)

Framework and Tools

- D3, Svelte, React, Babylon.js, Three.js, WebXR, Unity, Reality Kit, SwiftUI, XCode, Unreal Engine, TensorFlow, Blender, Fusion 360, DaVinci Resolve

Cloud Computing

- AWS, Databricks, Azure, GCP

Teaching

TA, Human-Computer Interaction

Northeastern University

TA, Information Visualization

Northeastern University

- Proposed and developed a cross-platform (Web/Mobile) prototype for citizen-science data collection under the advisement of Dr. Konstantin Läufer.

NSF Research Experience for Undergraduates

University of Tennessee Joint Institute for Computer Sciences

May 2017 – August 2017 Knoxville, TN

- Engineered a computational pipeline for real-time EEG-based velocity prediction, leveraging high-performance computing and neural network architectures to enable brain-computer interface control of remote vehicles under the direction of Dr. Xiaopeng Zhao.

Research Fellowship

Loyola Computer Science Summer Research Program

May 2016 & May 2017 Chicago, IL

- Designed and engineered 3D VR environments for Bayesian psychophysics experiments and prototyped activity recognition models using wearable sensor data for toddler behavioral analysis under the direction of Dr. Mark V. Albert.

Formal Education/Degree

Ph.D. Candidate Computer Science

Khoury College of Computer Sciences - Northeastern University

September 2018 – May 2023 Boston, MA

- Focus: Data Science and Visualization, Human Computer Interaction
- Research Lab: Data Visualization @ Khoury
- Advisor: Dr. Cody Dunne
- Ph.D. Thesis: The Mediums, The Masses, The Methods: Towards Meeting the Demands of Immersive Analytics Saffo 2023

M.S. Computer Science

Khoury College of Computer Sciences - Northeastern University

September 2018 – December 2020 Boston, MA

- Focus: Data Science and Visualization, Human Computer Interaction
- Research Lab: Data Visualization @ Khoury
- Advisor: Dr. Cody Dunne

B.S. Software Engineering

College of Arts & Sciences - Loyola University Chicago

August 2014 – April 2018 Chicago, IL

- Focus: Machine Learning, Brain Computer Interfaces
- Research Lab: ML Labs
- Advisor: Dr. Mark V. Albert

Presentations

Unraveling the Design Space of Immersive Analytics Full Paper Talk

IEEE VIS 2023

October 2023 Melbourne, Australia

Recorded Presentation Link

Through Their Eyes and In Their Shoes Full Paper Talk

ACM CHI 2023

April 2023 Hamburg, Germany

Recorded Presentation Link

Remote Experiments Via Social VR Full Paper Talk

ACM CHI 2021

May 2021 Yokohama, Japan

Recorded Presentation Link

Data Comets Full Paper Talk

EG EuroVis 2020

May 2020 Norrköping, Sweden

Recorded Presentation Link

Academic Service

Peer Review

- ACM CHI: 2020, 2021, 2023, 2024, 2025, 2026
- IEEE VIS: 2020, 2022, 2023, 2024
- IEEE VR: 2024, 2025, 2026
- ACM ISS: 2024, 2025 (AC)
- IEEE PacificVis: 2024
- ACM VRST: 2024
- ACM CHI Play: 2022

Awards and Grants

- JPMorgan Chase 2022 Future Lab for Applied Research Fellowship Award

Publications

Papers

- Gonzalez Penuela, R. E., Liu, F., MacIntyre, B., **Saffo, D.,** (Dec. 2025). "TapNav: Adaptive Spatiotactile Screen Readers for Tactually Guided Touchscreen Interactions for Blind and Low Vision People". In: *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol.* 9.4.
- Gottsacker, M., Chen, M., **Saffo, D.**, Lu, F., Lee, B., MacIntyre, B., (2025). "Examining the Effects of Immersive and Non-Immersive Presenter Modalities on Engagement and Social Interaction in Co-located Augmented Presentations". In: *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems*. CHI '25. Association for Computing Machinery.
- Liu, F., Wang, C. Y., Moriarty, W., Lu, F., Mir, U., **Saffo, D.**, Chen, M., MacIntyre, B., (May 2025). "SocialMiXR: Facilitating Hybrid Social Interactions at Conferences". In: *Proc. ACM Hum.-Comput. Interact.* 9.2.
- Butcher, P. W. S., Batch, A., **Saffo, D.**, MacIntyre, B., Elmqvist, N., Ritsos, P. D., (May 2024). " Is Native Naïve? Comparing Native Game Engines and WebXR as Immersive Analytics Development Platforms ". In: *IEEE Computer Graphics and Applications* 44.03, pp. 91–98.
- Di Bartolomeo, S., Crnovrsanin, T., **Saffo, D.**, Puerta, E., Wilson, C., Dunne, C., (2024). "Evaluating Graph Layout Algorithms: A Systematic Review of Methods and Best Practices". In: *Computer Graphics Forum* 43.6, e15073. eprint: `https://onlinelibrary.wiley.com/doi/pdf/10.1111/cgf.15073`.
- **Saffo, D.**, Di Bartolomeo, S., Crnovrsanin, T., South, L., Raynor, J., Yildirim, C., Dunne, C., (2024). "Unraveling the Design Space of Immersive Analytics: A Systematic Review". In: *IEEE Transactions on Visualization and Computer Graphics* 30.1, pp. 495–506.
- Syeda, U. H., South, L., Raynor, J., Panavas, L., **Saffo, D.**, Morriss, T., Dunne, C., Borkin, M. A., (2024). "Vis Repligogy: Towards a Culture of Facilitating Replication Studies in Visualization Pedagogy and Research". In: *EuroVis 2024 - Education Papers*. Ed. by Elif E. Firat, Robert S. Laramee, and Nicklas Sindelv Andersen. The Eurographics Association.
- Raynor, J., Crnovrsanin, T., Di Bartolomeo, S., South, L., **Saffo, D.**, Dunne, C., (2023). "The State of the Art in BGP Visualization Tools: A Mapping of Visualization Techniques to Cyberattack Types". In: *IEEE Transactions on Visualization and Computer Graphics* 29.1, pp. 1059–1069.
- **Saffo, D.** (2023). "The Mediums, The Masses, The Methods: Towards Meeting the Demands of Immersive Analytics". PhD thesis. Northeastern University.
- **Saffo, D.**, Batch, A., Dunne, C., Elmqvist, N., (2023). "Through Their Eyes and In Their Shoes: Providing Group Awareness During Collaboration Across Virtual Reality and Desktop Platforms". In: *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems*. CHI '23. Hamburg, Germany: Association for Computing Machinery.
- South, L., **Saffo, D.**, Vitek, O., Dunne, C., Borkin, M., (Apr. 2022). *Effective Use of Likert Scales in Visualization Evaluations: A Systematic Review*. Rome, Italy. eprint: `https://osf.io/4kgu6`.
- Ens, B., Bach, B., Cordeil, M., Engelke, U., Serrano, M., Willett, W., Prouzeau, A., Anthes, C., Büschel, W., Dunne, C., Dwyer, T., Grubert, J., Haga, J. H., Kirshenbaum, N., Kobayashi, D., Lin, T., Olaosebikan, M., Pointecker, F., **Saffo, D.**, Saquib, N., Schmalstieg, D., Szafir, D. A., Whitlock, M., Yang, Y., (2021). "Grand Challenges in Immersive Analytics". In: *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*. CHI '21. Yokohama, Japan: Association for Computing Machinery. eprint: `https://dl.acm.org/doi/pdf/10.1145/3411764.3446866`.
- Makarious, M. B., Leonard, H. L., Vitale, D., Iwaki, H., Sargent, L., Dadu, A., Violich, I., Hutchins, E., **Saffo, D.**, Bandres-Ciga, S., Kim, J. J., Song, Y., Bookman, M., Nojopranoto, W., Campbell, R. H., Hashemi, S. H., Botia, J. A., Carter, J. F., Maleknia, M., Craig, D. W., Keuren-Jensen, K. V., Morris, H. R., Hardy, J. A., Blauwendraat, C., Singleton, A. B., Faghri, F., Nalls, M. A., (2021). "Multi-Modality Machine Learning Predicting Parkinson's Disease". In: *bioRxiv*. Ed. by. eprint: `https://www.biorxiv.org/content/early/2021/03/07/2021.03.05.434104.full.pdf`.
- **Saffo, D.**, Di Bartolomeo, S., Yildirim, C., Dunne, C., (2021). "Remote and Collaborative Virtual Reality Experiments via Social VR Platforms". In: *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*. CHI '21. Yokohama, Japan: Association for Computing Machinery. eprint: `https://osf.io/3crhg`.
- Schwab, M., **Saffo, D.**, Bond, N., Sinha, S., Dunne, C., Huang, J., Tompkin, J., Borkin, M., (2021). "Scalable Scalable Vector Graphics: Automatic Translation of Interactive SVGs to a Multithread VDOM for Fast Rendering". In: *IEEE Transactions on Visualization and Computer Graphics*, pp. 1–1. eprint: `https://osf.io/ypxz2/`.
- South, L., **Saffo, D.**, Borkin, M. A., (2021). "Detecting and Defending Against Seizure-Inducing GIFs in Social Media". In: *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*. CHI '21. Yokohama, Japan: Association for Computing Machinery. eprint: `https://osf.io/4kgu6`.
- Bartolomeo, S. D., Pandey, A., Leventidis, A., **Saffo, D.**, Syeda, U. H., Carstensdóttir, E., El-Nasr, M. S., Borkin, M. A., Dunne, C., (2020). "Evaluating the Effect of Timeline Shape on Visualization Task Performance". In: *CHI '20: CHI Conference on Human Factors in Computing Systems, Honolulu, HI, USA, April 25-30, 2020*. ACM, pp. 1–12. eprint: `https://osf.io/2kdb9/`.
- **Saffo, D.**, Leventidis, A., Jain, T., Borkin, M. A., Dunne, C., (2020). "Data Comets: Designing a Visualization Tool for Analyzing Autonomous Aerial Vehicle Logs with Grounded Evaluation". In: *Comput. Graph. Forum* 39.3, pp. 455–468. eprint:

https://osf.io/a4hfd/.

- Schwab, M., **Saffo, D.**, Zhang, Y., Sinha, S., Nita-Rotaru, C., Tompkin, J., Dunne, C., Borkin, M. A., (2020). "VisConnect: Distributed Event Synchronization for Collaborative Visualization". In: *IEEE Transactions on Visualization and Computer Graphics*, pp. 1–1. eprint: https://osf.io/ut7e6.
- Borhani, S., Kilmarx, J., **Saffo, D.**, Ng, L., Abiri, R., Zhao, X., (2019). "Optimizing Prediction Model for a Noninvasive Brain-Computer Interface Platform Using Channel Selection, Classification, and Regression". In: *IEEE J. Biomed. Health Informatics* 23.6, pp. 2475–2482.

Workshops, Tutorials, & Posters

- **Saffo, D.**, Lee, B., Wang, C. Y., Lu, F., MacIntyre, B., (Nov. 2025). *Developing Immersive Visualizations and Interactions for the Web with Anu.js*. Tutorial at the IEEE Visualization Conference (IEEE VIS 2025).
- *Augmented Multimodal Interaction for Synchronous Presentation, Collaboration, and Education with Remote Audiences* (June 2024). Shonan Village Center, NII Shonan Meeting #213.
- **Saffo, D.**, Wang, C. Y., Lu, F., MacIntyre, B., (Mar. 2024). *Developing Immersive and Collaborative Visualizations with Web-Technologies*. Tutorial at the 31st IEEE Conference on Virtual Reality and 3D User Interfaces (IEEE VR 2024).
- **Saffo, D.**, Wang, C. Y., Lu, F., MacIntyre, B., Lee, B., (Oct. 2024). *Developing Immersive and Collaborative Visualizations with Web Technologies*. Tutorial at the IEEE Visualization Conference (IEEE VIS 2024).
- Wang, C. Y., **Saffo, D.**, Moriarty, B., MacIntyre, B., (2024). "CollabXR: Bridging Realities in Collaborative Workspaces with Dynamic Plugin and Collaborative Tools Integration". In: *2024 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)*, pp. 454–457.
- Gottsacker, M., Chen, M., **Saffo, D.**, Lu, F., MacIntyre, B., (Oct. 2023). "Asymmetric Immersive Presentation System for Financial Data Visualization". In: *MERCADO: Multimodal Experiences for Remote Communication Around Data Online, Workshop at IEEE VIS 2023*.
- – (2023). "Hybrid User Interface for Audience Feedback Guided Asymmetric Immersive Presentation of Financial Data". In: *2023 IEEE International Symposium on Mixed and Augmented Reality Adjunct (ISMAR-Adjunct)*, pp. 199–204.
- **Saffo, D.**, Di Bartolomeo, S., Yildirim, C., Dunne, C., (May 2020). "Two Dimensions for Organizing Immersive Analytics: Toward a Taxonomy for Facet and Position". In: *ACM CHI 2020 Workshop: Envisioning Future Productivity for Immersive Analytics (rooftop garden)*.
- **Saffo, D.**, Schwab, M., Borkin, M., Dunne, C., (May 2020). "GeoSocialVis: Visualizing Geosocial Academic Co-Authorship Networks by Balancing Topology- and Geography- Based Layouts". In: *IEEE Vis 2019 Poster*.
- **Saffo, D.**, Yildirim, C., Bartolomeo, S. D., Dunne, C., (2020). "Crowdsourcing Virtual Reality Experiments using VRChat". In: *Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems, CHI 2020, Honolulu, HI, USA, April 25-30, 2020*. ACM, pp. 1–8.
- **Saffo, D.**, Kilmarx, J. A., Borhani, S., Abiri, R., Zhao, X., Albert, M. V., (Oct. 2018). "Convolutional Neural Networks for a Cursor Control Brain Computer Interface". In: *2018 Biomedical Engineering Society (BMES) Annual Meeting*. Atlanta, United States.

Patents

- Gottsacker, M., Chen, M., **Saffo, D.**, Lu, F., MacIntyre, B., (Jan. 2025). "Systems and methods for audience feedback guided mixed reality". Patent Application US20250022020A1.
- **Saffo, D.**, Gonzalez, R., Liu, F., MacIntyre, B., (Feb. 2025). "Systems and methods for using stencils for multitouch interactive exploration". Patent Application US20250060869A1.