David Saffo

Ph.D. Candidate - Khoury College of Computer Sciences - Northeastern University

@ saffo.d@northeastern.edu ☏ +1 248-330-7872 ♦ Boston, Massachusetts 🔗 https://dsaffo.dev/

Formal Education/Degree

Ph.D. Candidate Computer Science

Khoury College of Computer Sciences - Northeastern University

📅 September 2018 – Present   📍 Boston, MA

- Speciality: Information Visualization, Human Computer Interaction
- Research Lab: Data Visualization @ Khoury
- Advisor: Dr. Cody Dunne

M.S. Computer Science

Khoury College of Computer Sciences - Northeastern University

📅 September 2018 – December 2020 📍 Boston, MA

- Speciality: Information 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

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

Employment

Graduate Research Assistant

Northeastern University Data Visualization @ Khoury

📅 2018 – Present   📍 Boston, MA

Researching novel methodological techniques, bespoke interactive visualization tools, and collaboration modalities — in the domain of information visualization and human computer interaction. Current research direction heavily focused on leveraging immersive analytics, in particular virtual reality, and synchronous collaboration to enhance the way data is viewed, interacted with, and understood. I have taken steps to achieve this with a variety of methodological and system contributions, e.g. Saffo et al. 2021; Schwab et al. 2020.

Undergraduate Research Assistant

Loyola University Chicago Computer Science

📅 2016 – 2018   📍 Chicago, IL

Developed a web and mobile application prototype for citizen science-based data collection under the advisement of Dr. Konstantin Laufer. Continued development of computational model for velocity prediction from EEG data focusing on neural network techniques to extend previous work.

Areas of Interest

- Information Visualization
- Human Computer Interaction
- Immersive Analytics
- VR/AR Applications

More Information

🔗 **Academic Record**
https://dblp.org/pid/253/0228

🔗 **Research Repositories**
https://osf.io/yxw85

🔗 **Code Repositories**
https://github.com/dsaffo

Technical Skills

Programming & Markup Languages

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

Programming Applications

- Data Visualization, Virtual Reality, Machine Learning, Statistical Analysis, Web Development, Mobile Development

Framework and Tools

- d3, Angular, Unity, Unreal Engine, TensorFlow, Flask, Blender, Fusion 360, DaVinci Resolve

Teaching

TA, Information Visualization

Northeastern University

📅 Sep 2020 – April 2021

📍 Boston, MA

Presentations

Remote Experiments Via Social VR Full Paper Talk

CHI 2021

📅 May 2021   📍 Yokohama, Japan

🔗 https://www.youtube.com/watch?v=9fvx5IGZgo4

NSF Research Experience for Undergraduates
University of Tennessee Joint Institute for Computer Sciences

📅 May 2017 – August 2017 📍 Knoxville, TN

Developed computational model for velocity prediction from EEG data that aided in the real-time prediction of velocity using EEG to control a remote-controlled car. Analyzed data using classification, regression, and neural networks using high-performance computing techniques under the direction of Dr. Xaopeng Zhao

----

Research Fellowship
Loyola Computer Science Summer Research Program

📅 May 2016 & May 2017 📍 Chicago, IL

Developed project creating a 3D virtual reality environment for a Bayesian psychophysics experiment. Designed a prototype model for toddler activity recognition using wearable devices, under the direction of Dr. Mark V. Albert

Data Comets Full Paper Talk
EuroVis 2020

📅 May 2020 📍 Norrköping, Sweden

🔗 `https://youtu.be/gEEKw6V-g_8?t=2152`

Bibliography

Publications

- Ens, Barrett, Benjamin Bach, Maxime Cordeil, Ulrich Engelke, Marcos Serrano, Wesley Willett, Arnaud Prouzeau, Christoph Anthes, Wolfgang Büschel, Cody Dunne, Tim Dwyer, Jens Grubert, Jason H. Haga, Nurit Kirshenbaum, Dylan Kobayashi, Tica Lin, Monsurat Olaosebikan, Fabian Pointecker, David Saffo, Nazmus Saquib, Dieter Schmalstieg, Danielle Albers Szafir, Matt Whitlock, and Yalong Yang (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`.
- Saffo, David, Sara Di Bartolomeo, Caglar Yildirim, and Cody Dunne (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`.
- South, Laura, David Saffo, and Michelle A. Borkin (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, Sara Di, Aditeya Pandey, Aristotelis Leventidis, David Saffo, Uzma Haque Syeda, Elın Carstensdóttir, Magy Seif El-Nasr, Michelle A. Borkin, and Cody Dunne (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, David, Aristotelis Leventidis, Twinkle Jain, Michelle A. Borkin, and Cody Dunne (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, Michail, David Saffo, Yixuan Zhang, Shash Sinha, Cristina Nita-Rotaru, James Tompkin, Cody Dunne, and Michelle A. Borkin (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, Soheil, Justin Kilmarx, David Saffo, Lucien Ng, Reza Abiri, and Xiaopeng Zhao (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.

Preprints

- Makarious, Mary B., Hampton L. Leonard, Dan Vitale, Hirotaka Iwaki, David Saffo, Lana Sargent, Anant Dadu, Eduardo Salmerón Castaño, John F. Carter, Melina Maleknia, Juan A. Botia, Cornelis Blauwendraat, Roy H. Campbell, Sayed Hadi Hashemi, Andrew B. Singleton, Mike A. Nalls, and Faraz Faghri (2021). *GenoML: Automated Machine Learning for Genomics*. arXiv: `https://arxiv.org/abs/2103.03221 [cs.LG]`.
- Makarious, Mary B., Hampton L. Leonard, Dan Vitale, Hirotaka Iwaki, Lana Sargent, Anant Dadu, Ivo Violich, Elizabeth Hutchins, David Saffo, Sara Bandres-Ciga, Jonggeol Jeff Kim, Yeajin Song, Matt Bookman, Willy Nojopranoto, Roy H. Campbell, Sayed Hadi Hashemi, Juan A. Botia, John F. Carter, Melina Maleknia, David W. Craig, Kendall Van Keuren-Jensen, Huw R. Morris, John A. Hardy, Cornelis Blauwendraat, Andrew B. Singleton, Faraz Faghri, and Mike A. Nalls (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`.

Posters & Workshops

- Saffo, David, Sara Di Bartolomeo, Caglar Yildirim, and Cody Dunne (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, David, Michail Schwab, Michelle Borkin, and Cody Dunne (May 2020). "GeoSocialVis: Visualizing Geosocial Academic Co-Authorship Networks by Balancing Topology- and Geography- Based Layouts". In: *IEEE Vis 2019 Poster*.
- Saffo, David, Caglar Yildirim, Sara Di Bartolomeo, and Cody Dunne (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, David, Justin A Kilmarx, Soheil Borhani, Reza Abiri, Xiaopeng Zhao, and Mark V Albert (Oct. 2018). "Convolutional Neural Networks for a Cursor Control Brain Computer Interface". In: *2018 Biomedical Engineering Society (BMES) Annual Meeting*. Atlanta, United States.