David Saffo

PhD Candidate - Khoury College of Computer Sciences - Northeastern University

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Formal Education/Degree

PhD Candidate in 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

BS 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 interactive visualization techniques for temporally evolving geospatial system data to support cyber security operators, network engineers, and UAV developers. Visualization research focused particularly around autonomous, semi-autonomous, or otherwise unmanned systems. Researching virtual reality remote evaluation techniques utilizing social VR platforms. Researching collaborative immersive analytics interactions and applications.

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.

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

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 – Dec 2020

Boston, MA

Presentations

Data Comets Full Paper Talk

EuroVis 2020

May 2020 Norrköping, Sweden

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

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

Bibliography

Publications

- 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.
- 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.
- 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: 10.31219/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

- 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 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 (2020). "Grand Challenges in Immersive Analytics". In: *Submitted at CHI 2021*.
- Laura South David Saffo, Michelle A. Borkin (2020). "Detecting and Defending Against Seizure-Inducing GIFs in Social Media". In: *Submitted at CHI 2021*.
- Saffo, David, Sara Di Bartolomeo, Caglar Yildirim, and Cody Dunne (2020). "Remote and Collaborative Virtual Reality Experiments via Social VR Platforms". In: *Submitted at CHI 2021*.

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.