Andrew T. **Burks**

Ph.D. Computer Science Student

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Education

Electronic Visualization Laboratory, University of Illinois at Chicago *Chicago, IL*

Ph.D. in Computer Science *January 2018 - Current*

- Research Focus on Collaborative Data Exploration and Visualization

University of Illinois at Chicago *Chicago, IL*

B.S. Computer Science *August 2013 - December 2017*

- Had Research Experience for Undergraduates (REU) support from the UIC Electronic Visualization Laboratory (EVL)
- Research Focus on Human Computer Interaction and Data Visualization/Visual Analytics
- **Major GPA**: 3.83

Experience

Electronic Visualization Laboratory, UIC *Chicago, IL*

Graduate Research Assistant *January 2018 - Current*

- *SAGE2™* is an NSF $5M project to build a web-based system for tiled display walls to enhance data intensive co-located and remote collaboration. Using client-side and server-side (Node.js) Javascript, I implemented a "Partition" system to allow for more geometric divisions and organizations of collaborative space, and created a SAGE2™ application to visualize CSV (Excel) format data. For more information about SAGE2™, visit http://sage2.sagecommons.org/

Electronic Visualization Laboratory, UIC *Chicago, IL*

Undergraduate Research Assistant *May 2016 - December 2017*

- *Context-aware Visual-Analysis of Englewood Social Services* is a tool developed for social good — connecting the youth from Chicago's Englewood neighborhood with necessary services. I lead my team of 3 to create and deploy an open-source, web-based tool to help employees and volunteers connect children with social services, as well as an analytics layer built atop this tool to allow for the analysis of social service distribution in relation to publicly available census data.
- *Interactive Exploration and Tracking of Ensemble Viscous Fingers* is an interactive web-based visualization of ensemble fluid dynamics simulation data. I presented this work at the IEEE VIS 2016 conference in a short, 5 minute talk. Creating the tool, I learned about data/task analysis, visual encodings, and web-based interactive visualization of large datasets. We developed a front-end using Javascript, D3.js, and three.js, as well as a back-end module forfeature identification and tracking.

UIC Department of Computer Science *Chicago, IL*

Undergraduate Peer Tutor *January - May 2016*

- Tutored peers on all beginner, intermediate, and advanced Computer Science coursework

Science and Arts Academy *Des Plaines, IL*

Summer Camp Counselor/Teacher *Summer 2014 and 2015*

- Developed Java lessons targeted toward Elementary and Middle School age children
- Lead hands-on activities for children ages 8-13 to learn programming based on the lessons I created
- Coordinated camp activities with peers for children ages 5 to 13

Selected Projects

Dynamic Influence Networks for Rule-Based Models

Visualization and Visual Analytics · Course Final Project *October 2016 - June 2017*

- Collaborated with researchers at Harvard Medical School to create a domain-specific tool for the exploration and analysis of protein-protein interaction simulations output by KaSim (Kappa Simulator)
- Prototyped visualization designs as a team to meet the needs of computational biologists
- Brainstormed methods to alleviate node-link diagram clutter as dataset size grows
- Implemented a clustered force-directed visualization for sliding time-window network data
- Wrote a IEEE VIS accepted, TVCG track publication on our method and tool

The Fear Engine

Video Game Design · Course Final Project *January - May 2016*

- Developed a first-person video game built in Unity3D (C#)
- Collaborated with 2 classmates in a semester-long project
- Implemented a 2nd order Markov Chain AI system for enemies
- Brainstormed and described formal elements of game prior to implementation
- Gave weekly technical presentations of detailed project updates to peers

Honors & Awards

2017	**Honorable Mention**, IEEE VIS 2017 VAST Challenge Mini-Challenge 2	*Phoenix, AZ*
2017	**Honorable Mention**, IEEE VIS 2017 VAST Challenge Mini-Challenge 3	*Phoenix, AZ*
2016	**Honorable Mention**, IEEE VIS Conference: VGTC VPG Data Visualization Contest	*Baltimore, MD*

Publications

Journal Publications

J2   G. E. Marai, C. Ma, **A. Burks**, F. Pellolio, G. Canahuate, D. Vock, A. S. R. Mohamed, and C. D. Fuller. "Precision Risk Analysis of Cancer Therapy with Interactive Nomograms and Survival Plots", Under review.

J1   A. G. Forbes, **A. Burks**, K. Lee, X. Li, P. Boutillier, J. Krivine, and W. Fontana. "Dynamic Influence Networks for Rule-based Models", IEEE Transactions on Visualization and Computer Graphics, pp. 1-11, 24(1), January 2018.

Conference Publications

C1   D. McNamara, J. Tapia, C. Ma, T. Luciani, **A. Burks**, J. Trelles, and G. E. Marai. "Spatial Analysis of Employee Safety Using Organizable Event Quiltmaps". In Proceedings of the IEEE VIS 2016 Workshop on Temporal and Sequential Event Analysis, Baltimore, MD, USA, Oct. 2016.

Posters & Abstracts

P6   J. Castor, J. Borowicz, **A. Burks**, M. Thomas, T. Luciani, G.E. Marai, "MC2 - Mining Factory Pollution Data through a Spatial-Nonspatial Flow Approach", IEEE Visual Analytics Science and Technology (VAST) Challenge 2017 Proceedings, pp. 1-2, 2017. **Honorable Mention - Clarity in Visual Communication**

P5   V. Mahida, B. Kupiec, **A. Burks**, T. Luciani, G.E. Marai, "MC3 - A Web-Based Interactive Image Explorer for Temporal Analysis of Satellite Images", IEEE Visual Analytics Science and Technology (VAST) Challenge 2017 Proceedings, pp. 1-2, 2017. **Honorable Mention - Good Interactive Image Explorer**

P5   D. Kirilov, I. Lindmae, **A. Burks**, C. Ma, G.E. Marai, MC1- A Bespoke Analysis Tool for Spatio-temporal Park Traffic Data. IEEE Visual Analytics Science and Technology (VAST) Challenge 2017 Proceedings, pp. 1-2, 2017.

P3   C. Ma, **A. Burks**, T. Luciani, A. Terebus, J. Liang, and G. E. Marai. "Visualizing ensemble time-evolving probability landscapes of stochastic networks", ISMB/ECCB 2017, pp. 1-2, BioVis'17

P2   T. Luciani, J. Trelles, C. Ma, **A. Burks**, M. Thomas, K. Bharadwaj, S. Singh, P. Hanula, L. Di, G.E. Marai. "Multi-scale Voronoi-based ACT Assessment ". IEEE VGTC VPG International Data-Visualization Contest, Baltimore, MD, USA. **Honorable Mention**. Oct. 2016.

P1   **A. Burks**, C. Sugiyama, T. Luciani, J. Komperda, G. E. Marai. "Interactive Exploration and Tracking of Viscous Fingers in Large-Scale Ensemble Simulations." IEEE Scientific Visualization Contest, 2016. **Certificate of Merit**

Invited Presentations

IEEE Scientific Visualization Contest 2016 Session *Baltimore, MD*

Interactive Exploration and Tracking of Ensemble Viscous Fingers *Oct. 2016*

- Presented our data visualization contest entry

Skills

Languages   JavaScript, TypeScript, Java, C/C++, HTML, CSS, SQL, C#, F#, SQL

Libraries and Tools   D3.js, Node.js, Three.js, React, WebSocket, Leaflet.js, REST, SODA, OpenGL

Selected Coursework

Computer Algorithms I, Undergraduate Design/Research *(Topic: Data Visualization)*, Visualization and Visual Analytics, Computer Graphics I, Computer Graphics II *(Topic: Interactive Scientific Visualization)*, Video Game Design, Artificial Intelligence I, Intro. to Machine Learning