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Education

2014	PhD in Media Arts and Technology, University of California, Santa Barbara. MS in Computer Science, University of California, Santa Barbara.
2009	MA in Media Arts and Technology, University of California, Santa Barbara.
1992	BA in British and American Literature, New College of Florida.
1990	AA in Liberal Arts, Bard College at Simon's Rock.

Appointments

2017–now	Assistant Professor, Computational Media Department, University of California, Santa Cruz.
	Director, UCSC Creative Coding, University of California, Santa Cruz.
2014–2017	Assistant Professor, Department of Computer Science, University of Illinois at Chicago.
	Assistant Adjunct Professor, School of Art and Art History, University of Illinois at Chicago.
	Director, Creative Coding Research Group within the Electronic Visualization Laboratory, University of Illinois at Chicago.
2012–2014	Assistant Professor, School of Information: Science, Technology, and Arts, University of Arizona, Tucson.

Research Grants

Active	**Development of Continuum: A Virtualized Attentive Environment for Amplified Collaboration**, 2016-2019. *NSF Major Research Instrumentation (MRI) Program.* PI: A. Johnson; Co-PIs: G.-E. Marai, **A. G. Forbes**, R. Kenyon, M. Brown. Total budget: $550,000.
	Reading and Assembling Contextual and Holistic Big Mechanisms, 2014-2018. *DARPA Big Mechanism.* PI: M. Surdeanu; Co-PIs: K. Barnard, C. Morrison, **A. G. Forbes**, R. Gutenkunst, G. Yao. Total Budget: $3,630,770.

Enhancing Nurse Effectiveness via Augmented Communication Tools (ACTs), 2014-2018. *NIH National Institute of Biomedical Imaging and Bioengineering R01* (part of the NSF/NIH Smart and Connected Health Program). PI: J. Carrington; Co-PIs: **A. G. Forbes**, M. Surdeanu. Total Budget: $749,973.

Previous **Interactive Visual Analytics for Electronic Measurements**, 2016-2017. *Keysight Technologies, Inc.: Applications and Core Technology University Research (ACT-UR)*. PI: **A. G. Forbes**. Total Budget: $45,000.

Ambisonic Sound System for 3D Audio Rendering and Interactive Virtual Soundscapes, 2016-2017. *UIC College of Engineering Advancement Office's Annual Fund*. PI: **A. G. Forbes**; Co-PI: A. Çamcı. Total budget: $14,049.

Making the West Side: Community Conversations on Neighborhood Change, 2016-2017. *NEH The Common Good: Humanities in The Public Square*. PI: J. Scott; Key Personnel: **A. G. Forbes**. Total Budget: $200,000.

Chicago0.0: Chicago History AR Experience, 2016. *Princess Grace Foundation*. PI: Geoffrey Alan Rhodes; Key Personnel: **A. G. Forbes**. Total Budget: $45,000.

Visualizing the Structure and Function of Biological Pathways to Accelerate Discovery in Cancer Research, 2015-2016. *UIC College of Engineering Seed Funding Award*. PI: **A. G. Forbes**. Total Budget: $35,000.

Creative Challenges at the Intersections of Visualization Research and New Media Arts, 2015-2016. *UIC Office of the Vice Provost for Faculty Affairs, Faculty Scholarship Support Fund*. PI: **A. G. Forbes**. Total Budget: $1,000.

Interactive and Immersive Electronic Measurement Visualization, 2015. *Keysight Technologies, Inc. University Research Program*. PI: **A. G. Forbes**. Total Budget: $15,000.

iAnimal: Cyberinfrastructure Enabling Animal Breeding, Genetics, and Genomics, 2013-2016. *USDA Agriculture and Food Research Initiative*, Grant #2013-67015-21231. PI: E. Lyons; Co-PIs: F. McCarthy, **A. G. Forbes**, J. Koltes. Total Budget: $500,000.

Inferring Structure and Forecasting Dynamics on Evolving Networks, 2010-2015. *AFOSR Multidisciplinary University Research Initiative (MURI)*, Grant #FA9550-10-1-0569. PI: J. Brantingham (UC Los Angeles); Co-PI: P. Cohen (University of Arizona); Funded Personnel (Summer 2013): **A. G. Forbes**. Total Budget: $1,501,438 (University of Arizona).

Didactic Visualization for Exposing the Structure of Musical Performance, 2013-2014. *University of Arizona, Confluencenter for Creative Inquiry Graduate Fellowship*. Awardee: M. K. Chau; Advisor: **A. G. Forbes**. Total Budget: $4,400.

Publications

In press   [J16] **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*, 24(1), January 2018.

[B7] A. Çamcı, C. Çakmak, and **A. G. Forbes**. Applying game mechanics to networked music HCI applications. In S. Holland, T. Mudd, A. McPherson, and M. Wanderlay, editors, *Music and Human Computer Interaction: Remixed.* Springer, 2018.

[C41] A. Çamcı, K. Lee, C. J. Roberts, and **A. G. Forbes**. INVISO: A cross-platform user interface for creating virtual sonic environments. In *Proceedings of the 30th ACM Symposium on User Interface Software and Technology (UIST)*, Quebec City, Canada, October 2017.

[W16] J. Keiriz, O. Ajilore, A. D. Leow, and **A. G. Forbes**. Immersive analytics for clinical neuroscience. In *Proceedings of the IEEE VIS Workshop on Immersive Analytics*, Phoenix, Arizona, October 2017.

2017   [J15] E. Garcia Bravo, A. Burbano, V. Byrd, and **A. G. Forbes**. The Interactive Image: A media archaeology approach. *Leonardo*, 50(4):368–375, August 2017.

[C40] Ç. Erdem, A. Çamcı, and **A. G. Forbes**. Biostomp: A biocontrol system for embodied performance using mechanomyography. In *Proceedings of the 17th International Conference on New Interfaces for Musical Expression (NIME)*, pages 65–70, Copenhagen, Denmark, May 2017.

[C39] T. Dang and **A. G. Forbes**. CactusTree: A tree drawing approach for hierarchical edge bundling. In *Proceedings of the 10th IEEE Pacific Visualization Symposium (PacificVis)*, Seoul, Korea, April 2017.

[C38] T. Dang, P. Murray, and **A. G. Forbes**. BioLinker: Bottom-up exploration of protein interaction networks. In *Proceedings of the 10th IEEE Pacific Visualization Symposium (PacificVis)*, Seoul, Korea, April 2017.

[J14] G. Legrady and **A. G. Forbes**. Data in context: Conceptualizing site-specific visualization projects. *Leonardo*, 50(2):200–204, April 2017.

[E9] **A. G. Forbes** and F. Chevalier, editors. Special Section: Highlights from the IEEE VIS 2014 Arts Program (VISAP'14), Part 2. *Leonardo*, 50(2):199–210, April 2017.

[C37] T. Marrinan, L. Renambot, J. Leigh, **A. G. Forbes**, S. Jones, and A. Johnson. Mixed presence collaboration using scalable visualizations in heterogeneous display spaces. In *Proceedings of the 20th ACM Conference on Computer-Supported Cooperative Work & Social Computing (CSCW)*, pages 2236–2245, Portland, Oregon, February-March 2017.

[B6] **A. G. Forbes**. Pedagogical experiments in creative coding. In M. Filimowicz and V. Tzankova, editors, *Teaching Computational Creativity*, chapter 12, pages 273–291. Cambridge University Press, 2017.

[J13] P. Murray, F. McGee, and **A. G. Forbes**. A taxonomy of visualization tasks for the analysis of biological pathway data. *BMC Bioinformatics*, 18(2):21–1–13, 2017.

[C36] A. Purgato, M. Santambrogio, T. Berger-Wolf, and **A. G. Forbes**. Interactive visualization for brain spatio-temporal networks. In *Proceedings of the IEEE International Conference on Biomedical and Health Informatics (BHI)*, pages 21–24, Orlando, Florida, February 2017.

[E8] **A. G. Forbes** and F. Chevalier, editors. Special Section: Highlights from the IEEE VIS 2014 Arts Program (VISAP'14), Part 1. *Leonardo*, 50(1):89–96, February 2017.

[J12] R. Etemadpour and **A. G. Forbes**. Density-based motion. *Information Visualization*, 16(1):3–20, January 2017.

2016   [B5] M. Xing, O. Ajilore, O. Wolfson, C. Abbott, A. MacNamara, R. Tadayonnejad, **A. G. Forbes**, K. L. Phan, H. Klumpp, and A. Leow. Thought chart: Tracking dynamic EEG brain connectivity with unsupervised manifold learning. In G. Ascoli, M. Hawrylycz, H. Ali, D. Khazanchi, and Y. Shi, editors, *Brain Informatics and Health*, volume 9919 of *Lecture Notes in Artificial Intelligence*, chapter 15, pages 149–157. Springer, 2016. (Best Paper Award.)

[C35] T. Marrinan, L. Renambot, J. Leigh, **A. G. Forbes**, S. Jones, and A. Johnson. Synchronized mixed presence data-conferencing using large-scale shared displays. In *Proceedings of the 11th ACM International Conference on Interactive Surfaces and Spaces (ISS)*, pages 355–360, Niagara Falls, Canada, November 2016.

[E7] **A. G. Forbes**, editor. Special Section: Highlights from the IEEE VIS 2013 Arts Program (VISAP'13), Part 3. *Leonardo*, 49(5):451–455, October 2016.

[J11] B. Balogh, A. Çamcı, P. Murray, and **A. G. Forbes**. Spectral landscapes: Visualizing electromagnetic interactions. *IEEE Computer Graphics and Applications*, 36(5):7–11, September-October 2016.

[C34] F. Paduano, R. Etemadpour, and **A. G. Forbes**. BranchingSets: Interactively visualizing categories on node-link diagrams. In *Proceedings of the 9th International Symposium on Visual Information Communication and Interaction (VINCI)*, pages 9–16, Dallas, Texas, September 2016.

[C33] M. Cavallo, G. A. Rhodes, and **A. G. Forbes**. Riverwalk: Incorporating historical photographs in public outdoor augmented reality experiences. In *Proceedings of the 15th IEEE International Symposium on Mixed and Augmented Reality (ISMAR)*, pages 160–165, Merida, Mexico, September 2016.

[C32] A. Çamcı, P. Murray, and **A. G. Forbes**. A web-based system for designing interactive virtual soundscapes. In *Proceedings of the 42nd International Computer Music Conference (ICMC)*, pages 579–584, Utrecht, Netherlands, September 2016.

[C31] C. Çakmak, A. Çamcı, and **A. G. Forbes**. Networked virtual environ-

ments as collaborative music spaces. In *Proceedings of the 16th International Conference on New Interfaces for Musical Expression (NIME)*, pages 106–111, Brisbane, Australia, July 2016.

[C30] G. Özdemir, A. Çamcı, and **A. G. Forbes**. PORTAL: An audiovisual laser performance system. In *Proceedings of the 16th International Conference on New Interfaces for Musical Expression (NIME)*, pages 338–343, Brisbane, Australia, July 2016.

[J10] T. Dang, N. Pendar, and **A. G. Forbes**. TimeArcs: Visualizing fluctuations in dynamic networks. *Computer Graphics Forum*, 35(3):61–69, June 2016.

[W15] T. Dang, H. Cui, and **A. G. Forbes**. MultiLayerMatrix: Visualizing large taxonomic datasets. In *Proceedings of the 7th EuroVis Workshop on Visual Analytics (EuroVA)*, pages 55–59, Groningen, Netherlands, June 2016.

[P15] M. Chukhman, G. Conte, A. Leow, O. Ajilore, and **A. G. Forbes**. Leap Motion gesture controls in BRAINtrinsic: Interactive immersive VR connectome exploration. *Organization for Human Brain Mapping*, June 2016. (Presented at the OHBM 2016 Annual Meeting *Poster Session* in Geneva, Switzerland, Poster #4041).

[W14] C. Çakmak, A. Çamcı, and **A. G. Forbes**. Using game mechanics to facilitate networked musical collaboration. In *Proceedings of CHI 2016 Workshop on Music and HCI (MusicHCI)*, pages 6–1–4, San Jose, California, May 2016.

[E6] **A. G. Forbes**. Data seams: Curating conversations at the intersections of art and visualization. *Leonardo*, 49(2):106, April 2016.

[E5] **A. G. Forbes**, editor. Special Section: Highlights from the IEEE VIS 2013 Arts Program (VISAP'13), Part 2. *Leonardo*, 49(2):167–171, April 2016.

[B4] R. Etemadpour, L. Linsen, J. G. Paiva, C. Crick, and **A. G. Forbes**. Choosing visualization techniques for multidimensional data projection tasks: A guideline with examples. In S. Battiato, J. Pettré, R. Laramee, P. Richard, A. Kerren, F. Imai, and J. Braz, editors, *Computer Vision, Imaging and Computer Graphics – Theory and Applications*, volume 598 of *Communications in Computer and Information Science*, chapter 9, pages 166–186. Springer, 2016.

[W13] G. E. Marai, **A. G. Forbes**, and A. Johnson. Interdisciplinary immersive analytics at the Electronic Visualization Laboratory: Lessons learned and upcoming challenges. In *Proceedings of the IEEE VR Workshop on Immersive Analytics*, Greenville, South Carolina, March 2016.

[W12] A. Çamcı and **A. G. Forbes**. Node Kara: An audiovisual mixed reality installation. In *Proceedings of the IEEE VR Workshop on Mixed Reality Art (MRA)*, pages 1–4, Greenville, South Carolina, March 2016.

[W11] M. Cavallo and **A. G. Forbes**. DigitalQuest: A mixed reality approach to scavenger hunts. In *Proceedings of the IEEE VR Workshop on*

Mixed Reality Art (MRA), pages 11–15, Greenville, South Carolina, March 2016.

[P14] A. Çamcı, P. Murray, and **A. G. Forbes**. Designing and controlling virtual sonic environments using a browser-based 3DUI. In *Proceedings of IEEE Symposium on 3D User Interfaces (3DUI) Poster Session*, pages 235–236, Greenville, South Carolina, March 2016.

[C29] G. Conte, A. Ye, K. Almryde, O. Ajilore, A. Leow, and **A. G. Forbes**. Intrinsic geometry visualization for the interactive analysis of brain connectivity patterns. In *Visualization and Data Analysis (VDA)*, Proceedings of IS&T Electronic Imaging, pages 481–1–8. San Francisco, California, February 2016.

[J9] C. Ma, **A. G. Forbes**, D. A. Llano, T. Berger-Wolf, and R. V. Kenyon. SwordPlots: Exploring neuron behavior within dynamic communities of brain networks. *Journal of Imaging Science and Technology*, 60(1):10405–1–13, January 2016. (Charles E. Ives Journal Award for Outstanding Contribution.)

2015   [J8] A. Q. Ye, O. A. Ajilore, G. Conte, J. GadElkarim, G. Thomas-Ramos, L. Zhan, S. Yang, A. Kumar, R. Magin, **A. G. Forbes**, and A. D. Leow. The intrinsic geometry of the human brain connectome. *Brain Informatics*, 2(4):197–210, December 2015.

[P13] O. Ajilore, G. Conte, A. Ye, **A. G. Forbes**, and A. Leow. Exploring intrinsic topologies of the human connectome. *Neuropsychopharmacology*, 40(S272–S442):T75, December 2015. (Presented at the 54th Annual Meeting of the American College of Neuropsychopharmacology *Poster Session II*).

[C28] M. De Marchi, J. Eriksson, and **A. G. Forbes**. TransitTrace: Route planning using ambient displays. In *Proceedings of the ACM International Conference on Advances in Geographic Information Systems (SIGSPATIAL)*, pages 67–1–4, Seattle, Washington, November 2015.

[W10] S. Yin, M. Li, N. Tilahun, **A. G. Forbes**, and A. Johnson. Understanding transportation accessibility of metropolitan Chicago through interactive visualization. In *Proceedings of the ACM SIGSPATIAL International Workshop on Smart Cities and Urban Analytics (UrbanGIS)*, pages 77–84, Seattle, Washington, November 2015.

[C27] K. Almryde and **A. G. Forbes**. Halos in a dark sky: Interactively exploring the structure of dark matter halo merger trees. In *Proceedings of IEEE Scientific Visualization, SciVis Contest, "Visualize the Universe"*, pages 73–77, Chicago, Illinois, October 2015. (Best Submission Award, 2nd Place.)

[W9] A. Chetta, J. M. Carrington, and **A. G. Forbes**. Augmenting EHR interfaces for enhanced nurse communication and decision making. In *Proceedings of the IEEE VIS Workshop on Visual Analytics in Healthcare (VAHC)*, article no. 4, pages 1–6, Chicago, Illinois, October 2015.

[B3] G. Conte, A. Ye, **A. G. Forbes**, O. Ajilore, and A. Leow. BRAINtrinsic: A virtual reality-compatible tool for exploring intrinsic topologies of the human

brain connectome. In Y. Guo, K. Friston, A. Faisal, S. Hill, and H. Peng, editors, *Brain Informatics and Health*, volume 9250 of *Lecture Notes in Artificial Intelligence*, chapter 7, pages 67–76. Springer, 2015.

[E4] **A. G. Forbes** and D. Tsoupikova, editors; J. H. Fisher, designer. *Data Improvisations, the IEEE VIS 2015 Arts Program Exhibition Catalog.* IEEE, 2015.

[W8] T. N. Dang, N. Franz, B. Ludäscher, and **A. G. Forbes**. ProvenanceMatrix: A visualization tool for multi-taxonomy alignments. In *Proceedings of the ISWC Workshop on Visualization and User Interfaces for Ontologies and Linked Data (VOILA)*, volume 1456 of *CEUR Workshop Proceedings*, pages 13–24, Bethlehem, Pennsylvania, October 2015.

[P12] O. Ajilore, G. Conte, A. Ye, **A. G. Forbes**, and A. Leow. A virtual reality-compatible tool for exploring intrinsic topologies of the human brain connectome. In *Neuroscience 2015, Poster #95.11/BB86*, Chicago, Illinois, October 2015.

[E3] **A. G. Forbes**, editor. Special Section: Highlights from the IEEE VIS 2013 Arts Program (VISAP'13), Part 1. *Leonardo*, 48(5):465–468, October 2015.

[C26] R. Etemadpour, P. Murray, M. Bomhoff, E. Lyons, and **A. G. Forbes**. Designing and evaluating scientific workflows for Big Data interactions. In *Proceedings of IEEE International Symposium on Big Data and Visual Analytics (BDVA)*, pages 25–32, Hobart, Australia, September 2015.

[J7] **A. G. Forbes**, A. Burbano, P. Murray, and G. Legrady. Imagining Macondo: Interacting with García Márquez' literary landscape. *IEEE Computer Graphics and Applications*, 35(5):12–19, September-October 2015.

[J6] **A. G. Forbes**. Articulating media arts activities in art-science contexts. *Leonardo*, 48(4):330–337, August 2015.

[C25] **A. G. Forbes**. Turbulent World: An artwork indicating the impact of climate change. In *Proceedings of the International Symposium on Electronic Art (ISEA)*, pages 189–1–4, Vancouver, Canada, August 2015.

[P11] M. Chukhman, G. Conte, A. Leow, O. Ajilore, and **A. G. Forbes**. Immersive brain connectome imaging. In *SIGGRAPH "Appy Hour" Proceedings*, Los Angeles, California, August 2015.

[J5] T. N. Dang, P. Murray, and **A. G. Forbes**. PathwayMatrix: Visualizing binary relationships between proteins in biological pathways. *BMC Proceedings*, 9(6):S3, August 2015.

[J4] T. N. Dang, P. Murray, J. Aurisano, and **A. G. Forbes**. ReactionFlow: An interactive visualization tool for causality analysis in biological pathways. *BMC Proceedings*, 9(6):S6, August 2015.

[J3] F. Paduano and **A. G. Forbes**. Extended LineSets: A visualization technique for the interactive inspection of biological pathways. *BMC Proceedings*, 9(6):S4, August 2015.

[C24] **A. G. Forbes** and J. Villegas. Video granular synthesis. In *Proceedings of the ACM/Eurographics International Symposium on Computational Aesthetics in Graphics, Visualization, and Imaging (CAe)*, pages 195–201, Istanbul, Turkey, June 2015.

[C23] C. Ma, R. V. Kenyon, **A. G. Forbes**, T. Berger-Wolf, B. J. Slater, and D. A. Llano. Visualizing dynamic brain networks using an animated dual-representation. In *Proceedings of the Eurographics Conference on Visualization (EuroVis)*, pages 73–77, Cagliari, Italy, May 2015.

[B2] M. Pinter, **A. G. Forbes**, D. Bazo, and G. Legrady. Generation of engineering research directions through artistic process. In E. Ayiter, O. Yazicigil, and A. L. Brooks, editors, *Proceedings of the Fourth International Conference on Arts and Technology (ArtsIT)*, volume 145 of *Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering (LNICST)*, chapter 4, pages 28–35. Springer, 2015.

[P10] S. Subramaniam, J. Koltes, J. Reecy, **A. G. Forbes**, F. McCarthy, and E. Lyons. Management and visualization of iAnimal quantitative data using iPlant and EPIC-CoGe. In *Proceedings of Plant and Animal Genome XXIII (PAG)*, San Diego, California, April 2015.

[C22] R. Etemadpour, L. Linsen, C. Crick, and **A. G. Forbes**. A user-centric taxonomy for multidimensional data projection tasks. In *Proceedings of the International Conference on Information Visualization Theory and Applications (IVAPP)*, pages 51–62, Berlin, Germany, March 2015.

[C21] J. Villegas, R. Etemadpour, and **A. G. Forbes**. Evaluating the perception of different matching strategies for time-coherent animations. In *Human Vision and Electronic Imaging XX (HVEI)*, volume 9394 of *Proceedings of SPIE-IS&T Electronic Imaging*, pages 939412–1–13. San Francisco, California, February 2015.

[C20] R. Etemadpour and **A. G. Forbes**. Enhancing multidimensional data projection using density-based motion. In *Visualization and Data Analysis 2015 (VDA)*, volume 9397 of *Proceedings of SPIE-IS&T Electronic Imaging*, pages 93970L–1–15. San Francisco, California, February 2015.

2014   [B1] **A. G. Forbes**. Interactive cellular automata systems for creative projects. In P. Rosin, A. Adamatzky, and X. Sun, editors, *Cellular Automata in Image Processing and Geometry*, volume 10 of *Emergence, Complexity and Computation*, chapter 13, pages 253–272. Springer, 2014.

[W7] P. Murray and **A. G. Forbes**. Interactively exploring geotemporal relationships in demographic data via stretch projections. In *Proceedings of the ACM SIGSPATIAL International Workshop on Interacting with Maps (MapInteract)*, pages 29–35, Dallas, Texas, November 2014.

[C19] J. Villegas and **A. G. Forbes**. Analysis/synthesis approaches for creatively processing video signals. In *Proceedings of the ACM International Conference on Multimedia (MM)*, pages 37–46, Orlando, Florida, November 2014.

[C18] R. Etemadpour, P. Murray, and **A. G. Forbes**. Evaluating density-based motion for Big Data visual analytics. In *Proceedings of the IEEE Conference on Big Data*, pages 451–460, Washington, DC, October 2014.

[P9] P. Murray and **A. G. Forbes**. StretchPlot: Interactive visualization of multi-dimensional trajectory data. In *Proceedings of IEEE Conference on Visual Analytics Science and Technology (VAST) Poster Session*, pages 261–262, Paris, France, November 2014.

[C17] G. Legrady and **A. G. Forbes**. Staging data visualization installations in site-specific situations. In *Proceedings of the IEEE VIS Arts Program (VISAP)*, pages 85–90, Paris, France, November 2014.

[C16] **A. G. Forbes** and F. Chevalier. Art+Interpretation. In *Proceedings of the IEEE VIS Arts Program (VISAP)*, pages 43–45, Paris, France, November 2014.

[E2] **A. G. Forbes** and F. Chevalier, editors; L. Thorson, designer. *The IEEE VIS 2014 Arts Program Exhibition Catalog*. IEEE, 2014.

[C15] C. Jette, K. Thomas, J. Villegas, and **A. G. Forbes**. Translation as technique: Collaboratively creating an electro-acoustic composition for saxophone and live video projection. In *Joint Proceedings of the 40th International Computer Music Conference (ICMC) and the 11th Sound and Music Computing Conference (SMC)*, pages 463–468, Athens, Greece, September 2014.

[C14] S. Savage, **A. G. Forbes**, C. Toxtli, G. McKenzie, S. Desai, and T. Höllerer. Visualizing targeted audiences. In C. Rossitto, L. Ciolfi, D. Martin, and B. Conein, editors, *Proceedings of the 11th International Conference on the Design of Cooperative Systems (COOP)*, pages 17–34. Springer International Publishing, 2014.

[P8] S. M. Desai and **A. G. Forbes**. An interactive 3D rendering of Joan Miro's *Blue I*. In *ACM/Eurographics International Symposium on Computational Aesthetics in Graphics, Visualization, and Imaging (CAe) Poster Session*, Vancouver, Canada, August 2014.

[P7] S. M. Desai, L. Rodriguez, S. Savage, N. E. Chavez, and **A. G. Forbes**. Crowdsourcing volunteer tasks. In *Celebration of Women in Computing in Southern California (CWIC-SoCal) Poster Session*, Carlsbad, California, April 2014.

[P6] J. M. Carrington, M. Surdeanu, and **A. G. Forbes**. Augmented communication tools to enhance nurse decision-making. In *College of Nursing Research Intensive Summer Experience (RISE) Poster Session*, Tucson, Arizona, August 2014.

[C13] **A. G. Forbes** and J. Villegas. Creative applications of microvideos. In *Proceedings of the the Sixth International Conferences on Advances in Multimedia (MMEDIA)*, pages 108–111, Nice, France, February 2014.

[C12] **A. G. Forbes**, J. Villegas, K. Almryde, and E. Plante. A stereoscopic

system for viewing the temporal evolution of brain activity clusters in response to linguistic stimuli. In A. J. Woods, N. S. Holliman, and G. E. Favalora, editors, *Stereoscopic Displays and Applications XXV*, volume 9011 of *Proceedings of SPIE-IS&T Electronic Imaging*, pages 90110I–1–7. San Francisco, California, February 2014.

[W6] J. Villegas and **A. G. Forbes**. Interactive non-photorealistic video synthesis for artistic user experience on mobile devices. In *Proceedings of the International Workshop on Video Processing and Quality Metrics for Consumer Electronics (VPQM)*, pages 16–1–7, Chandler, Arizona, January 2014. (Best Paper Award.)

[C11] **A. G. Forbes**, C. Jette, and A. Predoehl. Analyzing intrinsic motion textures created from naturalistic video captures. In *Proceedings of the International Conference on Information Visualization Theory and Applications (IVAPP)*, pages 107–113, Lisbon, Portugal, January 2014.

[T3] **A. G. Forbes**. *Emerging Methodologies for Interdisciplinary Research Practice.* PhD thesis, Media Arts & Technology Program, University of California, Santa Barbara, 2014. George Legrady, Tobias Höllerer, and JoAnn Kuchera-Morin, advisors.

[T2] **A. G. Forbes**. *Exploring Motion as a Modality for Visualizing Data.* Master's thesis, Department of Computer Science, University of California, Santa Barbara, 2014. Tobias Höllerer and Matthew Turk, advisors.

2013 [C10] **A. G. Forbes** and L. Thorson. Art+Experiment. In *Proceedings of the IEEE VIS Arts Program (VISAP)*, Atlanta, Georgia, October 2013.

[W5] **A. G. Forbes**, M. Surdeanu, P. Jansen, and J. Carrington. Transmitting narrative: An interactive shift-summarization tool for improving nurse communication. In *IEEE Workshop on Interactive Visual Text Analytics (TextVis)*, Atlanta, Georgia, October 2013.

[P5] **A. G. Forbes**, T. Fast, and T. Höllerer. The Natural Materials Browser: Using a tablet interface for exploring volumetric materials science datasets. In *Proceedings of IEEE Scientific Visualization Conference (SciVis) Poster Session*, Atlanta, Georgia, October 2013.

[E1] **A. G. Forbes**, editor; L. Thorson, designer. *The IEEE VIS 2013 Arts Program Exhibition Catalog.* IEEE, 2013.

[C9] **A. G. Forbes**. Media arts roles in art-science collaborations. In *Proceedings of the Re-new Digital Arts Festival*, pages 276–282, Copenhagen, Denmark, October-November 2013.

[C8] J. Villegas and **A. G. Forbes**. Double-meaning: Interactive animations with simultaneous global and local narrative. In *Proceedings of the Re-new Digital Arts Festival*, pages 300–304, Copenhagen, Denmark, October-November 2013.

[C7] **A. G. Forbes**, T. Höllerer, and G. Legrady. Generative fluid profiles for interactive media arts projects. In *Proceedings of the ACM/Eurographics*

International Symposium on Computational Aesthetics in Graphics, Visualization, and Imaging (CAe), pages 37–43, Anaheim, California, July 2013.

[P4] J. Villegas and **A. G. Forbes**. Real-time ambiguous animations. In *ACM/Eurographics International Symposium on Computational Aesthetics in Graphics, Visualization, and Imaging (CAe) Poster Session*, Anaheim, California, July 2013.

[C6] C. Roberts, **A. G. Forbes**, and T. Höllerer. Enabling multimodal mobile interfaces for musical performance. In *Proceedings of the International Conference on New Interfaces for Musical Expression (NIME)*, pages 102–105, Daejeon, Korea, May 2013.

[W4] S. Savage, **A. G. Forbes**, and T. Höllerer. Utilizing crowdsourced databases for social media question asking. In *ACM CSCW Workshop on Social Media Question Asking*, San Antonio, Texas, February 2013.

2012   [W3] **A. G. Forbes**, S. Savage, and T. Höllerer. Visualizing and verifying directed social queries. In *IEEE Workshop on Interactive Visual Text Analytics (TextVis)*, Seattle, Washington, October 2012.

[C5] A. Burbano, D. Bazo, S. DiCicco, and **A. G. Forbes**. The New Dunites. In *Proceedings of the ACM International Conference on Multimedia (MM)*, pages 1501–1502, Nara, Japan, October 2012.

[P3] S. Savage, **A. G. Forbes**, R. Savage, T. Höllerer, and N. E. Chavez. Directed social queries with transparent user models. In *Adjunct Proceedings of the ACM symposium on User Interface Software and Technology (UIST)*, pages 59–60, Cambridge, Massachusetts, October 2012.

[C4] **A. G. Forbes**, T. Höllerer, and G. Legrady. Expressive energy: The Fluid Automata project. In *Proceedings of the International Symposium on Electronic Art (ISEA)*, pages 65–70, Albuquerque, New Mexico, September 2012.

[C3] **A. G. Forbes** and K. Odai. Iterative synaesthetic composing with multimedia signals. In *Proceedings of the International Computer Music Conference (ICMC)*, pages 573–578, Ljubjiana, Slovenia, September 2012.

2011   [J2] B. Alper, T. Höllerer, J. Kuchera-Morin, and **A. G. Forbes**. Stereoscopic highlighting: 2D graph visualization on stereo displays. *IEEE Transactions on Visualization and Computer Graphics*, 17(12):2325–2333, November-December 2011.

[P2] **A. G. Forbes**, B. Alper, T. Höllerer, and G. Legrady. Interactive folksonomic analytics with the Tag River visualization. In *IEEE Workshop on Interactive Visual Text Analytics (TextVis) Poster Session*, Providence, Rhode Island, October 2011.

[C2] **A. G. Forbes** and G. Legrady. Cell Tango: An evolving interactive archive of cellphone photography. In *Proceedings of the International Symposium on Electronic Art (ISEA)*, Istanbul, Turkey, September 2011.

2010   [J1] **A. G. Forbes**, T. Höllerer, and G. Legrady. Behaviorism: A framework for dynamic data visualization. *IEEE Transactions on Visualization and Computer Graphics*, 16(6):1164–1171, November-December 2010.

2009   [W2] **A. G. Forbes**. Coil maps. In *Proceedings of the Workshop on Media Arts, Science, and Technology (MAST): The Future of Interactive Media*, Santa Barbara, California, January 2009.

[W1] J. Ventura, **A. G. Forbes**, B. Adams, S. Joshi, K. Grossner, M. Bulger, T. Höllerer, and B. Manjunath. IssueBrowser: Knowledge acquisition via multimedia data. In *Proceedings of the Workshop on Media Arts, Science, and Technology (MAST): The Future of Interactive Media*, Santa Barbara, California, January 2009.

[T1] **A. G. Forbes**. *A Framework for Dynamic Information Visualization*. Master's thesis, Media Arts & Technology Program, University of California, Santa Barbara, 2009. George Legrady, Tobias Höllerer, and JoAnn Kuchera-Morin, advisors.

2008   [P1] **A. G. Forbes** and S. T. Gries. Corpus Browser: An intuitive and interactive corpus tool. In *International Computer Archive for Modern and Medieval English (ICAME) Demo Session*, Ascona, Switzerland, May 2008.

2007   [C1] **A. G. Forbes** and G. Janée. Visually browsing georeferenced digital libraries. In *Proceedings of USGS Geoinformatics*, pages 69–70, San Diego, California, May 2007.

Exhibitions & Performances

2017   **Fluid City**, *150 North Riverside's Video Wall*, Chicago, Illinois, 2017. With Anıl Çamcı (audio). Curated by Yuge Zhou. Scheduled.

Coming or Going, ChinaVIS Arts Program, China Visualization 2017, Qingdao, China, 2017. Organized by Rebecca Xu.

Psionic, *Gant Recital Hall*, Society for Electro-Acoustic Music in the United States (SEAMUS'17), St. Cloud State University, Minnesota, 2017. With Christopher Jette (composition/laptop) and Courtney Miller (oboe).

Psionic and **Sumocu**, DIGITFest, Erie, Pennsylvania, 2017. With Christopher Jette (composition/laptop) and Joel Hunt (saxophone). Organized by Joel Hunt.

v→t→d and **Amazing Stories**, DIGITFest, Erie, Pennsylvania, 2017. With Christopher Jette (composition/laptop). Organized by Joel Hunt.

2016   **Psionic**, *Eyeclopes Studios*, Electroacoustic Barn Dance (EABD'16), University of Mary Washington, Fredericksburg, Virginia, 2016. With Christopher Jette (composition/laptop) and Michael Morley (oboe).

Psionic, *Riverside Recital Hall*, Iowa City, Iowa, 2016. With Christopher

Jette (composition/laptop) and Courtney Miller (oboe).

RF, *Electronic Measurement Gallery* at Keysight Technologies, San Jose, California, 2016. With Brett Balogh, Anıl Çamcı, and Paul Murray. Organized by Jonathan Helfman.

2015   **RF**, in Data Improvisations, the IEEE VIS 2015 Arts Program, at *LeRoy Neiman Center, School of the Art Institute*, Chicago, Illinois, 2015. With Brett Balogh, Anıl Çamcı, and Paul Murray. Organized by Angus Forbes and Daria Tsoupikova.

Poetry Chains, in Hybridity and Synesthesia, *Lydgalleriet*, as part of the Electronic Literature Organization Festival, Bergen, Norway, 2015. Curated by Mei Szetu; organized by Scott Rettberg, Jill Walker Rettberg, and Roderick Coover.

v→t→d, at International Computer Music Conference, Denton, Texas, 2015. With Christopher Jette (composition/laptop), Kelland Thomas (composition/ saxophone), Javier Villegas (visuals/laptop).

Coming or Going, in Idea Chain, the Expressive 2015 Arts Exhibition, at *Koç University Incubation Center*, Istanbul, Turkey, 2015. Organized by Angus Forbes and Anıl Çamcı.

Imaginando Macondo, at the 2015 Feria Internacional del Libro de Bogotá (International Book Fair of Bogotá), installed in the *Macondo Pavilion*, Bogotá, Colombia, 2015. With George Legrady and Andres Burbano. Commissioned by Cámara Colombiana del Libro.

2014   **Coming or Going**, in AVANT-AZ, the Annual Showcase of Experimental Media, at *Exploded View Microcinema*, Tucson, Arizona, 2014. Curated by David Sherman and Rebecca Barten.

v→t→d (recorded version), at International Computer Music Conference's *Listening Post*, Athens, Greece, 2014. With Christopher Jette (composition/laptop), Kelland Thomas (composition/saxophone), Javier Villegas (visuals/laptop).

Abstract Mobile Mirrors, in Currents 2014, the Santa Fe International New Media Festival, installed at *El Museo Cultural de Santa Fe*, Santa Fe, New Mexico, 2014. With Javier Villegas. Curated by Mariannah Amster and Frank Ragano of Parallel Studios.

Visualization for John Luther Adams' Dark Waves, in Mingyui Kevin Chau's Doctoral Ensemble Recital, *Crowder Hall*, Tucson, Arizona, 2014. Performed by Mingyui Kevin Chau (piano) and Daniel Linder (piano).

2013   **Sound-Worlds**, at *Exploded View Microcinema*, Tucson, Arizona, 2013. With Christopher Jette (compostion/laptop), Kelland Thomas (composition/saxophone), Matt Mitchell (guitar), Javier Villegas (visuals/laptop). Organized by Angus Forbes, Rebecca Barten, and David Sherman.

v→t→d, in Confluencenter for Creative Inquiry's *Show & Tell* at Playground, Tucson, Arizona, 2013. With Christopher Jette (composition/laptop), Kel-

land Thomas (composition/saxophone), Matt Mitchell (guitar), Javier Villegas (visuals/laptop). Organized by Javier Duran and Yvonne Ervin.

Generative Fluid Profiles, at Expressive 2013, *Visual Showcase*, Anaheim, California, 2013. Chaired by T. Metin Sezgin.

Fluid Automata, at Science City, *Tucson Festival of Books*, Tucson, Arizona, 2013.

Turbulent World, in Brave New World, *Spare Change Artist Space*, San Francisco, California, 2013. Curated by OFF Space (Kathrine Worel and Emmanuelle Namont-Kouznetsov).

Multiple Water (interactive multitouch table and prints), in Form, Content, & Computation, *The Student Union Gallery*, Tucson, Arizona, 2013. Curated by Kelland Thomas.

ReTelling, in George Legrady Retrospective, *21C Museum Hotel*, Cincinatti, Ohio, 2013.

2012   **Annular Genealogy** in Bits & Pieces, *Media Arts & Technology Art Show*, University of California, Santa Barbara, 2012. With Kiyomitsu Odai.

Fluid Automata (single user), in Array of Talks: Visualizing the Future, *AlloSphere Research Facility*, Santa Barbara, California, 2012.

New Dunites, in Eternal/Moment, ACM Multimedia Interactive Arts Program, *Todaiji Cultural Center*, Nara, Japan, 2012. With Danny Bazo, Andres Burbano, and Solen Kiratli DiCicco.

Annular Genealogy, in Standard Deviation, *Old Peace Store*, Santa Barbara, California, 2012. With Kiyomitsu Odai. Curated by Marco Pinter and Ted Mills.

Annular Genealogy, presented at *AlloSphere Research Facility*, Santa Barbara, California, 2012. With Kiyomitsu Odai.

New Dunites, presented at *Experimental Visualization Lab*, University of California, Santa Barbara, 2012. With Danny Bazo, Andres Burbano, and Solen Kiratli DiCicco.

Fluid Automata (single user), presented at Open House, *Center for NanoScience Institute*, Santa Barbara, California, 2012. Organized by Joann Kuchera-Morin.

Cenozoic Trio in Santa Barbara New Music Series, 2012. With Charlie Roberts and Colter Frazier.

2011   **ReTelling**, in George Legrady: Refraction, *Edward Cella Art+Architecture*, Los Angeles, California, 2011.

Fluid Automata (multiple user), in IEEE VisWeek 2011 Art Show, *Convention Center Rotunda*, Providence, Rhode Island, 2011. Curated by Dan Keefe and Bruce Campbell.

Cell Tango, in Rethinking Art & Machine, *The Museum*, Kitchener, Ontario, 2011. Curated by Marla Wasser.

Incompressible (digital print series), in Keeping an Eye on Surveillance, *The Performance Art Institute*, San Francisco, California, 2011. Curated by Hanna Regev.

Study on Brownian (*F) Motion, in Questionable Utility, *Media Arts & Technology Art Show*, University of California, Santa Barbara, 2011. With Kiyomitsu Odai.

Cenozoic Trio in Santa Barbara New Music Series, 2011. With Charlie Roberts and Colter Frazier.

Fluid Automata (single user), in Questionable Utility, *Media Arts & Technology Art Show*, University of California, Santa Barbara, 2011. Organized by Xárene Eskandar.

Infrequent Crimes, in Spread: California Conceptualism, Then and Now, *SOMArts Gallery*, San Francisco, California, 2011. Curated by OFF Space (Kathrine Worel, Elyse Hochstadt, and Emmanuelle Namont-Kouznetsov).

Information Poems, in Super Santa Barbara, *Contemporary Arts Forum*, Santa Barbara, California, 2011. Curated by Warren Schultheis.

2010   **Cell Tango**, in Beyond Mediations, *Mediations Biennale*, Poznan, Poland, 2010. Curated by Tsutomu Mizusawa and Ryszard Kluszczynski.

The Code Fed Back, in Creatones, the UCSB CREATE Concert, *Lotte Lehmann Concert Hall*, Santa Barbara, California, 2010. With Kiyomitsu Odai; curated by Curtis Roads.

Angria Duo, in Santa Barbara New Music Series, 2010. With Kiyomitsu Odai; curated by Colter Frazier.

Open Set 1.2 (w/Brian Hanson), in USCB Composer's Concert ("Duck-billed Platypus"), *Karl Geiringer Hall*, Santa Barbara, California, February 25, 2010. Curated by Luke Taylor.

Caleidos Duo in Santa Barbara New Music Series, 2010. With Brian Hanson; curated by Colter Frazier.

Cell Tango and **Coil Maps**, presented at Gala Event, *Lawrence Hall of Science*, Berkeley, California, 2010. Coordinated by Marjorie Randell-Silver.

Open Set 1.1, in Composer's Recital, *Karl Geiringer Hall*, Santa Barbara, California. 2010. With Brian Hanson.

Amazing Stories, presented at Media Arts Festival, *Children's Library*, Palo Alto, California, 2010. Organized by Christopher Jette.

Amazing Stories, in Something You Don't Know, *Media Arts & Technology Art Show*, University of California, Santa Barbara, 2010. Organized by Amichi Amar, Solen Kiratli DiCicco, and Andres Burbano.

2009   **Cell Tango**, installed at *Davis Museum And Cultural Center*, Wellesley, MA, 2009. Curated by Jim Olson.

At Cedar Tavern, in UCSB Composer's Concert ("Cuttlefish"), *Karl Geiringer Hall*, Santa Barbara, California, 2009. With Joann Cho and Kiyomitsu Odai; curated by Luke Taylor.

ReTelling, in eArts Beyond, *Shanghai International Gallery Exhibition of Media Art*, Shanghai, China, 2009.

Improvisations (w/Charlie Roberts), in Something for Everyone, *Media Arts & Technology Art Show*, University of California, Santa Barbara, June 8, 2009. Organized by Amichi Amar, Salman Bakht and Anıl Çamcı.

Cell Tango, in Scalable Relations, *Beall Center for Art+Technology*, Irvine, California, 2009. Curated by Christiane Paul.

2008   **Data Flow**, installed at *Corporate Executive Board Corporate Headquarters*, Arlington, Virginia, 2008-2009. With George Legrady; commissioned by Gensler Design.

Coil Maps and **Tag River**, in Everybody Wants Everything, *Media Arts & Technology End of the Year Show*, University of California, Santa Barbara, 2008. Organized by Amichi Amar, Solen Kiratli DiCicco, and Andres Burbano.

Cell Tango, installed at Ford Gallery, *Eastern Michigan University*, Ypsilanti, Michigan, 2008. Curated by Sarah Smarch.

Cell Tango, Inaugural Event, *Théâtre et Auditorium de Poitiers*, Poitiers, France, 2008. Hubertus von Amelunxen, Artistic Director.

2007   **Global Collaborative Visual Mapping Archive**, in Speculative Data and the Creative Imaginary: Shared Visions Between Art and Technology, *National Academy of Sciences*, Washington, DC, 2007. Curated by Pamela Jennings.

Issue Browser, presented at Open House, *Center for NanoScience Institute*, Santa Barbara, California, 2007.

2006   **Global Collaborative Visual Mapping Archive**, in George Legrady: New Works, *Pari Nadimi Gallery*, Toronto, Ontario, 2006.

Global Collaborative Visual Mapping Archive, presented at the 01SJ Biennial, *International Symposium on Electronic Arts*, San Jose, California, 2006. Organized by Steve Dietz.

Invited Talks

2017   **Art and Visualization**, VizUM Symposium, University of Miami, organized by Alberto Cairo, Athena Hadjxenofontos, and Mahsa Mirzargar. Scheduled.

Visualization and Computational Media, ACM SIGGRAPH, Leonardo Birds-of-a-Feather, organized by Sheila Pinkel, Los Angeles, California.

Recent BioVis Projects from the Electronic Visualization Laboratory, Great Lakes Bioinformatics Conference, Chicago, Illinois.

Selected Visualization Projects, Chicago Data Visualization Group, organized by Tom Schenk, Chicago, Illinois.

Big Mechanism Visualization, Scientific Computing and Imaging Institute, University of Utah.

Creative and Critical Data Visualization, Natural History Museum of Utah.

Art and Visualization, DIGITFest 2017, Keynote Speaker, Penn State Erie.

Interrogating Complexity, Dept. of Computational Media, University of California, Santa Cruz.

Deep Learning and Generative Design, Dept. of Design, The Ohio State University.

Selected Visualization Projects, Advanced Computing Center for the Arts and Design, The Ohio State University.

2016   **Selected Visualization Projects**, the ATEC/EMAC Research Colloquia Series, University of Texas at Dallas.

Visualization for Innovation across Countries, ICTD 2016 Workshop on Innovation across Countries, Keynote Speaker, University of Michigan.

Selected Visualization Projects, Visualization "Summer Camp," organized by Remco Chang, Kristi Potter, and Eugene Zhang, Eugene, Oregon.

Visual Music and Exploratory Strategies in Synaesthetic Composition, School of Music, University of Iowa.

Interrogating Complexity, College of Arts, Media, and Design, Northeastern University.

Big Mechanism Visualization, Bio-IT World Expo and Conference, Cambridge Healthtech Institute, Boston, Massachusetts.

Cross-disciplinary Concepts in Art and Research, Festival on the Hill, Symposium on Music, Science, and Nature, University of North Carolina at Chapel Hill.

Interrogating Complexity, Dept. of Information & Decision Sciences, University of Illinois at Chicago.

Computational Aesthetics Projects, Electronic and Time-Based Art Program, Envision Center, Purdue University.

Creative Shader Programming Workshop, Dept. of Computer Graphics, Purdue University.

Selected Visualization Projects, Chicago Data Visualization Group, organized by Tom Schenk, Chicago, Illinois.

Immersive Visualization of RF Data, Keysight Technologies, Measurement Analysis Research Group, Santa Clara, California.

2015 **Selected Visualization Projects**, New York Times Research and Development group (nytlabs.com), New York City, New York.

Visualización: Ciencia y Arte, Dept. of Design Lecture Series ("la Sala"), Universidad de los Andes, Bogota, Colombia.

Three Years Later: A Brief History of The IEEE VIS Arts Program, ACM SIGGRAPH, Leonardo Birds-of-a-Feather, organized by Roger Malina and Pamela Grant-Ryan, Los Angeles, California.

Curating and Creating Electronic Works in Arts Contexts, Electronic Literature Organization 2015: The End(s) of Electronic Literature, Invited Panelist, with Sandy Baldwin, Helen J. Burgess, Roderick Coover, Dene Grigar, and Mia Zamora, Bergen, Norway.

Creative Visualizations of Complex Data, Media Arts & Technology Lecture Series, UC Santa Barbara.

Visualizing Taxon Characters and Enabling Taxonomy Alignments, National Center for Supercomputing Applications, University of Illinois.

Causality Analytics, Institute for Genomics and Systems Biology, University of Chicago.

Visualizing Causality in Biological Pathway Networks, Defense Advanced Research Projects Agency, Arlington, Virginia.

Computational Kinetic Art, The International Kinetic Art Exhibit & Symposium, Boynton Beach, Florida.

2014 **Emerging Methodologies for Art-Science Collaboration**, Conference on "Digital Art: An Ever-changing Art Form," Onassis Cultural Centre, Athens, Greece.

Dynamics, Immersion, and Transparency: Current Trends in Interactive Data Visualization, Dept. of Computer Science, University of Illinois at Chicago.

Art as Research, College of Architecture, Design, and the Arts, University of Illinois at Chicago.

Designing a Data Visualization Curriculum, Parsons The New School for Design.

Facilitating Interdisciplinary Research via Multimedia Computing, Dept. of Computer and Information Science, Brooklyn College.

2013 **An Overview of Current Topics and Themes in Visualization**, Interdisciplinary Computational Intelligence Seminar, University of Arizona.

Expanding the Creative Possibilities of Mobile Devices, Mobile Matters Connections Symposium, University of Arizona.

Creative Sensing Everywhere, Mobility 20x20, organized by Beth Weinstein, Tucson, Arizona.

Selected Visualization Projects, Computer Vision Group, University of Arizona.

Fluid Discretization, ISEA Presenter's Evening, Media Arts & Technology Lecture Series, UC Santa Barbara.

Dynamic Visualization: Explorations of Motion and Representation, Dept. of Computer Science, Research Colloquia Series, University of Arizona.

Introducing the Creative Coding Lab, Spring SISTA Showcase, University of Arizona.

2012   **Taxonomy of Visualization Methods**, School of Communication, University of Miami.

The Fluid Automata Project, School of Interactive Games and Media, Rochester Institute of Technology.

Artist Presentation, Santa Barbara Salon, organized by Tam Hunt, Santa Barbara, California.

Intersections Between Art and Visualization, School of Information: Science, Technology, and Arts, University of Arizona.

Selected Visualization Projects, Dept. of Science, Mathematics, and Computing, Bennington College.

Coil Maps & Geographic Data Visualization, Dept. of Computer Science, Ithaca College.

Selected Visualization Projects, School of Informatics and Computing, Indiana University-Purdue University Indianapolis.

2011   **The Future of Information Visualization**, Dept. of Visualization, Texas A&M University.

Selected Visualization Projects, Dept. of Visualization, Texas A&M University.

Teaching

University of California, Santa Cruz

CMPM 290A, Visualizing Complex Systems. F2017. (scheduled)

University of Illinois at Chicago

CS 523, Multimedia Systems. S2017.
CS 424, Visualization and Visual Analytics 1. F2016.
CS 491/DES 400, Creative Coding 1. S2016.
CS 526, Computer Graphics 2. F2015.
CS 524, Visualization and Visual Analytics 2. S2015.
CS 488, Computer Graphics 1. F2014.

University of Arizona

ISTA 416/516, Human-Computer Interaction, S2014.
ISTA 499, Data Visualization Projects, F2013.
ISTA 352, Images: Past, Present, and Future, F2013.
ISTA 401/501, Multimedia Installations, S2013.

University of California, Santa Barbara

MAT 200C, Research Tactics, S2011.
MAT 594CM, Real-Time Graphics Programming, W2011.
MAT 201B, Programming with Media Data, F2010.
MAT 594CM, Fundamentals of Spatial Computing, S2009, S2010.

Service

Conference Organization

2018   Arts Papers chair for ACM SIGGRAPH 2018.

2017   General chair for VISAP'17, the IEEE VIS 2017 Arts Program, including a papers track and exhibition track, with co-chair Jeremy Boy.

Arts Papers vice-chair for ACM SIGGRAPH 2017.

General chair for the Workshop on Biological Data Visualization at Great Lakes Bioinformatics Conference (GLBIO), with co-chair G.Elisabeta Marai.

Session chair for InfoVis papers at IEEE VIS.

Session chair at the 2017 Expressive Joint Symposium on Computational Aesthetics (CAe), Sketch-Based Interfaces and Modeling (SBIM), and Non-Photorealistic Animation and Rendering (NPAR).

2016   General chair for VISAP'16, the IEEE VIS 2016 Arts Program, including a papers track and exhibition track, with co-chair Fanny Chevalier.

Papers chair for the Computational Aesthetics track of the 2016 Expressive Joint Symposium on Computational Aesthetics (CAe), Sketch-Based Interfaces and Modeling (SBIM), and Non-Photorealistic Animation and Rendering (NPAR), with co-chair Lyn Bartram.

Organizer and Moderator for the "Critical Visualization" panel at IEEE VIS 2016, featuring Marian Dörk, Jessica Hullman, Jessica Westbrook, Adam Trowbridge, and Dietmar Offenhuber.

Session chair at the International Symposium on Visual Information Communication and Interaction (VINCI).

Session chair at the Visualization and Data Analysis conference (VDA), part of IS&T Electronic Imaging 2016.

2015 General chair for VISAP'15, the IEEE VIS 2015 Arts Program, including a papers track and art exhibition, with co-chairs Fanny Chevalier and Daria Tsoupikova.

Arts Program chair for the 2015 Expressive Joint Symposium on Computational Aesthetics (CAe), Sketch-Based Interfaces and Modeling (SBIM), and Non-Photorealistic Animation and Rendering (NPAR), including a presentation session and art exhibition, with co-chair Anıl Çamcı.

On Organizing Committee for the 2015 ETC Information Visualization of Characters and Taxonomies Workshop (IVCT), with Hong Cui, James Macklin, Robert Morris, and Bertram Ludäscher.

Organizer and Moderator for the "Creative Challenges at the Intersections of Visualization Research and New Media Arts" panel at IEEE VIS 2015, featuring Eduardo Kac, Donna Cox, Dan Sandin, and Jo Wood.

Moderator for "Readings & Screenings" at the 2015 Electronic Literature Organization Conference (ELO), featuring Caitlin Fisher, Tony Viera, Steven Wingate, Penny Florence, Paolo Totaro, and Jason Lewis.

2014 General chair for VISAP'14, the IEEE VIS 2014 Arts Program, including a papers track and art exhibition, with co-chair Fanny Chevalier.

Chair of posters/demos track for the 2014 Expressive Joint Symposium on Computational Aesthetics (CAe), Sketch-Based Interfaces and Modeling (SBIM), and Non-Photorealistic Animation and Rendering (NPAR), co-located with ACM SIGGRAPH 2014.

2013 General chair for VISAP'13, the IEEE VIS 2013 Arts Program, including a papers track and art exhibition, with co-chair Lauren Thorson.

Editing

2014–2017 Editorial Advisor, Leonardo Editorial Board.

Editor of multiple special sections of Leonardo, the journal of the International Society for the Arts, Sciences and Technology.

2013–2017 Editor of the Proceedings of the IEEE VIS Arts Program, including the VIS Arts Program exhibition catalog.

2016–2017 Editorial Board member, Video Game Art Reader

Reviewing

Journal Reviews

Transactions on Visualization and Computer Graphics, 2016, 2017;
Transactions on Interactive Intelligent Systems, 2017; **Information
Visualization**, 2015, 2016; **Computer Graphics & Applications**, 2016;
Computers & Graphics, 2016; **Information Design Journal**, 2016,
2017; **Leonardo**, 2014–2017; **Simulation Modelling Practice and
Theory**, 2016, 2017; **Video Game Art Reader**, 2017; **Entropy**, 2017;
Journal of Urban Technology, 2017.

Conference Reviews

InfoVis, 2011–2017; **SciVis**, 2014–2017; **VAST**, 2013–2017; **VISAP**,
2013–2017; **SIGGRAPH**, 2015–2017; **EuroVis**, 2015–2017; **PacificVis**,
2014, 2016, 2017; **BioVis**, 2015–2017; **Expressive (CAe/NPAR/SBIM)**,
2014–2017; **VR**, 2016, 2017; **3DUI**, 2016; **ISMAR**, 2016, 2017; **VRST**,
2012, 2016, 2017; **UIST**, 2014–2017; **CHI**, 2012–2017; **CHI Play**,
2015–2017; **alt.chi**, 2015; **Information+**, 2016; **CSCW**, 2016–2018; **ISEA**,
2017; **ITS/ISS**, 2015–2017; **IUI**, 2015–2017; **MobileHCI**, 2015, 2017; **TVX**,
2017; **EICS**, 2014, 2015; **NIME**, 2015–2017; **Creativity & Cognition**,
2015, 2017; **DIS**, 2014, 2016, 2017; **SUI**, 2015–2017; **IDC**, 2015, 2017;
Graphics Interface, 2013; **MMEDIA**, 2014, 2015; **VDA**, 2016; **VDS**,
2017; **Immersive**, 2017; **VIS4DH**, 2016, 2017; **ACI**, 2016; **SIBGRAPI**,
2016.

Proposal Reviews

Reviewer for the Canada Foundation for Innovation, 2017.

Panelist for the NSF Graduate Research Fellowship Program, 2016.

Reviewer for the UIC Office for the Vice Chancellor of Research's Pilot Grant
Competition, 2016.

Internal UIC reviewer for NSF Major Research Instrumentation Acquisition
proposals, 2015 and 2016.

Reviewer for the UIC Chancellor's Graduate Research Award Program, 2015.

Reviewer of new research project proposals for Fonds Wetenschappelijk
Onderzoek—Vlaanderen, FWO (the Research Foundation—Flanders), 2015.

Reviewer for the UIC Chancellor's Discovery Fund for Multidisciplinary
Research, 2015.

Reviewer for NSF Division of Behavioral and Cognitive Sciences, 2014.

Other Reviewing

SIGGRAPH Art Papers Jury, 2017.

ACM CHI Arts Program Jury, 2017.

Visiting Reviewer for UIC's "Creative Coding" Graduate Seminar in Design, 2017.

Reviewer for Music, Performances, and Installations at NIME 2017.

Reviewer for the NCWIT Award for Aspirations in Computing, 2016.

Visiting Reviewer for UIC's "You Must Change Your Life. Now" Graduate Seminar in Studio Art, 2016.

Faculty Judge and Faculty Organizer for EVL Hack-a-thon at UIC, 2016.

Reviewer for Leonardo Abstracts Service (LABS), 2016.

Reviewer for best poster award at BioVis 2015 in Dublin, 2015.

Visiting Reviewer for School of the Art Institute's "Art of Data Visualization," Chicago, Illinois, 2015.

Member of the International Selection Committee for the 2015 Lumen Prize Exhibition.

Faculty Judge for ACM sponsored UA Student Hack-a-thon, Elegant Thought Studios, Tucson, Arizona, 2014.

Review Panelist for UA Downtown's Sustainable City Project (SCP), Tucson, Arizona, 2013.

Faculty Judge for Student Showcase (graduate and undergraduate), University of Arizona, 2013.

Departmental

Department of Computer Science, University of Illinois at Chicago (2014–2017)

Recipient of the UIC College of Engineering Faculty Research Award (2017).

Led the initiative to create the MS/MFA Joint Program in Computer Science and the Arts, the first accelerated graduate dual-degree program in the US offering a coursework-based MS in Computer Science alongside a studio-based MFA in New Media Arts. The program was approved in Spring 2017 and will be accepting students in Fall 2018.

Developed curriculum for three graduate seminars (CS 523, CS 524, and CS 526) and introduced a new course, Creative Coding, originally cross-listed with the Dept. of Design (as a special topics course), and then as a co-convened course in the Dept. of Computer Science (CS 427).

Faculty advisor for the UIC student chapter of the Audio Engineering Society (AES), 2015–2017.

On the Colloquium and Public Relations Committee, 2014–2017.

Faculty host for Distinguished Lecturer Series: 2016–2017, Sheelagh Carpendale; 2015–2016, Tamara Munzner; 2017–2018, Kwan Liu-Ma.

On the CS Advisory Committee, 2014–2016.

Co-organizer of UIC cross-departmental "lab crawl," with Sabrina Raaf and David Dumas, 2016.

School of Information: Science, Technology, and Arts, University of Arizona (2013–2014)

Designed the graduate and undergraduate curriculum for the Creative Coding track and developed a series of new courses (and updated existing ones), including: Data Visualization; Human-Computer Interaction; Images: Present, Past, and Future; Introduction to Creative Coding; Advanced Game Development (3D); and Advanced Creative Coding.

Headed the Visual Identity committee; Redesigned and developed SISTA web site; worked with designer to develop faculty and staff biographies.

On the planning committee for the MS in Information degree within the new School of Information.

Co-organizer for "Form, Content, and Computation," the 2013 SISTA Media Arts Exhibition.

Advising

Postdoctoral Researchers

2016–2017	Johnson Keiriz, Senior Software Engineer at Toshiba Medical Research Institute
2015–2017	Anıl Çamcı, Assistant Professor at University of Michigan
2014–2016	Tuan Dang, Assistant Professor at Texas Tech University
2013–2014	Ronak Etemadpour, Assistant Professor at CUNY City College of New York Javier Villegas, Researcher at Bauer Safety Engineering
2013	Christopher Jette, Researcher and Artist-in-Residence at Stanford University

MS Students

2017	Shiwangi Singh, Thesis: "Deep Bidirectional LSTM-based RNN for Casual Speech to Clear Speech Conversion", Associate at KPMG Cognitive Technology.
	Kyle Almryde, Programmer at HERE Technologies.
2016	Giorgio Conte, Thesis: "Visualizing the Intrinsic Geometry of Dynamic Human Brain Connectomes", Analyst at Moviri, Inc.
	Andrea Purgato, Thesis: "GPU Acceleration and Interactive Visualization for Spatio-Temporal Networks".
	Marco Cavallo, Thesis: "Merging Worlds: A Location-based Approach to Mixed Reality", Researcher at IBM T.J. Watson Research Center.

2015	Francesco Paduano, Thesis: "BranchingSets: A Visualization Technique for the Interactive Inspection of Biological Pathways", Developer at Dropbox, Inc.
	Massimo De Marchi, Thesis: "TransitTrace: An Exploration of Visual Encoding for Effective Route Planning using an Ambient Display", Developer at Ink of Pixel, Inc.
2014	Alexander Simes, Thesis: "Sphere Tracing, Distance Fields, and Fractals", Developer at AlphaBit Trading, Inc.

Additional Graduate Advising

2017–now	Bokai Cao, PhD Dissertation committee
	Shi Yin, PhD Dissertation committee
	Timothy Luciani, PhD Dissertation committee
	Fengjiao Wang, PhD Dissertation committee
2016–now	Sean Deitz, PhD Dissertation committee
	Manu Matthew Thomas, MS Thesis committee
2015–now	David Randolph, PhD Dissertation committee
	John Novak, PhD Dissertation committee
	Chihua Ma, PhD Dissertation committee
2017	Natawut Monaikul, PhD Written critique and presentation chair
	Hasan Iqbal, PhD Written critique and presentation committee
	Kyle Almryde, PhD Written critique and presentation committee
	Pooja Donekan, MS Project committee
	Surbhi Arora, MS Project committee
	Shvetha Suvarna, MS Project committee
	Kristine Lee, Graduate research assistant
	Xing Li, Graduate research assistant
	Sai Priya Jyothula, Graduate research assistant
2016	Tiffany Funk, PhD Dissertation committee (Dept. of Art History)
	Jordan Torf, PhD Written critique and presentation committee
	Yiji Zhang, PhD Written critique and presentation chair
	Itika Gupta, PhD Written critique and presentation chair
	Kshitij Gautam, PhD Written critique and presentation committee
	Tanima Chatterjee, PhD Written critique and presentation committee
	Tejus Bharadwaj, Graduate research assistant
	Malvika Kumar, Graduate research assistant
	Shiwangi Singh, Graduate research assistant
	Amanda Coleman, MS Project advisor
2015	Thomas Marrinan, PhD Dissertation committee
	Abdullah Alourani, PhD Written critique and presentation committee
	Sabita Acharya, PhD Written critique and presentation chair
	Alessandro Chetta, Graduate research assistant
	Davide Pagano, MS Thesis committee
	Amruta Nanavaty, MS Thesis committee

Other Work Experience

Santa Barbara   Researcher, AlloSphere Research Facility, California NanoSystems Institute, UC Santa Barbara. 2012.

Researcher, Four Eyes Lab, Computer Science Department, UC Santa Barbara. 2011.

Lecturer, Media Arts and Technology Program, UC Santa Barbara. 2009–2011.

Researcher, Experimental Visualization Lab, Media Arts and Technology Program, UC Santa Barbara. 2009.

Developer, Center for Nanotechnology in Society, UC Santa Barbara 2009–2010.

Developer, George Legrady Studio, 2008.

NSF IGERT Trainee in Interactive Digital Media, UC Santa Barbara. 2006–2008.

Developer, The Transliteracies Project, English Department, UC Santa Barbara, 2006.

Developer, Alexandria Digital Library / National Geospatial Digital Archive, UC Santa Barbara, 2005–2006.

New York   CEO and Founder, Synaesthetic Software, 2001–2004.

Director of Module Development, Micromuse, 1999–2001.

Developer, Calvin Alexander Networking, 1998–1999.

Developer, Metalab, 1997.