MICHELLE BORKIN _____

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EDUCATION

Ph.D. School of Engineering and Applied Sciences, Harvard University, Applied Physics, 2014.

> Thesis: *"Perception, Cognition, and Effectiveness of Visualizations with Applications in Science and Engineering"*

> Advisor: Hanspeter Pfister (Computer Science) & Alyssa Goodman (Astronomy)
> - National Defense Science and Engineering Graduate (NDSEG) Fellow
> - National Science Foundation (NSF) Graduate Research Fellow

M.S. School of Engineering and Applied Sciences, Harvard University, Applied Physics, 2011.

B.A. Harvard College, Astronomy and Astrophysics & Physics with Honors, 2006.

RESEARCH INTERESTS

Data visualization, human-computer interaction (HCI), medical imaging and radiology, astrophysics, cognition and perception, accessibility, education.

EXPERIENCE

○ **Assistant Professor**, Khoury College of Computer Sciences, Northeastern University (*August 2015 - present*)

> **Co-Director & Co-Founder**, Northeastern University Visualization Consortium (NUVis) (*September 2016 - present*)

> **Co-Lead**, Visualization @ Khoury Lab (September 2016 - present)

> **Affiliated Faculty**, NULab for Texts, Maps, and Networks, Northeastern University (*October 2015 - present*)

○ **Co-Founder, Visualization & HCI Scientist**, glue solutions, inc. (in partnership with glueviz.org), (*February 2020 - present*)

○ **Postdoctoral Research Fellow,** Computer Science Department (InfoVis Group with Prof. Tamara Munzner), University of British Columbia (*September 2014 - August 2015*)

> **Research Fellow,** Department of Surgery, Brigham & Women's Hospital (*November 2014 - August 2016*)

> **Associate in Computer Science,** School of Engineering and Applied Sciences, Harvard University (*June 2014 - August 2015*)

- **Graduate Research Fellow,** School of Engineering and Applied Sciences (Visual Computing Group, PI Prof. Hanspeter Pfister), Harvard University (*September 2008 - May 2014*)

- **Research Assistant in Computational Scientific Visualization,** Astronomical Medicine Project, Initiative in Innovative Computing (IIC) at Harvard University (succeeded by the Institute for Applied Computational Science) *(August 2006 - August 2008)*

- **Research Assistant,** Application of Medical Imaging Software to Astronomy Data, Harvard-Smithsonian Center for Astrophysics (*Summer 2005*)

- **Research Assistant,** COMPLETE Survey of Star Forming Regions, Harvard-Smithsonian Center for Astrophysics (*Summers 2001 - 2004*)

- **High School/Undergraduate Volunteer**, CfA Redshift Survey, Harvard-Smithsonian Center for Astrophysics (*Summers 2001 - 2003*)

- **High School Volunteer,** Whitin Observatory, Wellesley College (*September 2000 − May 2001*)

AWARDS AND ACKNOWLEDGEMENTS

- CHI 2021 Honorable Mention Award
  for "Detecting and Defending Against Seizure-Inducing GIFs in Social Media" by Laura South, David Saffo, & Michelle A. Borkin

- IEEE VIS 2020 Poster Research Award - Honorable Mention
  for "Generating Seizure-Inducing Sequences with Interactive Visualizations" by Laura South & Michelle A. Borkin

- CHI 2020 Best Paper Award
  for "Design Study "Lite" Methodology: Expediting Design Studies and Enabling the Synergy of Visualization Pedagogy and Social Good" by Uzma Haque Syeda, Prasanth Murali, Lisa Roe, Becca Berkey & Michelle A. Borkin

- IEEE VIS 2018 Best Poster Award
  for "CerebroVis: Topology and Constraint-based Network Layout for the Visualization of Cerebrovascular Arteries" by Aditeya Pandey, Harsh Shukla, Geoffrey S. Young, Lei Qin, Cody Dunne, & Michelle A. Borkin

- Course-Community Collaboration Teaching Award 2016-2017 - Honorable Mention, Northeastern University

- MIT "Rising Stars in EECS" Workshop Invitee 2013

- Star Family Prize for Excellence in Advising at Harvard (Nominee, 2013)

- National Defense Science and Engineering Graduate (NDSEG) Fellow 2010

- National Science Foundation (NSF) Fellow 2010

- TED ("Technology Entertainment Design") TEDGlobal 2009 Fellow

- ○ SEED Magazine "Revolutionary Mind" (July 2008)

INVITED TALKS

- ○ Invited Panelist, Vis for Social Good Panel, IEEE VIS 2020 (virtual event) (October 30, 2020)

- ○ Invited Speaker, Visualization in Astrophysics (VisAstro) Workshop, IEEE VIS 2020 (virtual event) (October 26, 2020)

- ○ Invited Speaker, Next in Data Visualization, Radcliffe Institute for Advanced Study, Harvard University (April 1, 2019)

- ○ Invited Speaker, HCI Seminar Series, MIT CSAIL (March 19, 2019)

- ○ Keynote Speaker, BostonCHI, Cambridge (November 13, 2018)

- ○ Invited Speaker, Digital Storytelling Panel, NULab, Northeastern University (October 11, 2018)

- ○ Invited Speaker, AMI (American Medical Illustrators Association) 2018 Annual Meeting (June 15, 2018)

- ○ Keynote Speaker at the May Institute for Computation and Statistics for Mass Spectrometry and Proteomics, held at Northeastern University (May 7, 2018)

- ○ Invited Speaker, Statistics and Data Science Conference (SDSCon), MIT (April 20, 2018)

- ○ Invited Speaker, Women in Data Science (Central Massachusetts), WPI (March 5, 2018)

- ○ Invited Speaker, Applied and Interdisciplinary Mathematics Seminar, COS, Northeastern University (October 17, 2017)

- ○ Invited Speaker, Faculty Colloquium, CAMD, Northeastern University (September 27, 2017)

- ○ Invited Speaker at CafeSci Boston, run by NOVA Education, WBGH (May 16, 2017)

- ○ Keynote Speaker at the May Institute for Computation and Statistics for Mass Spectrometry and Proteomics, held at Northeastern University (May 8, 2017)

- ○ Keynote Speaker at the Tapestry conference (St. Augustine, FL) (March 1, 2017)

- ○ Invited Talk as part of the "Data Science, Journalism, and the Future of Justice" hackathon, HUBWeek (Boston, MA) (September 28, 2016)

- ○ Special Seminar at the Information Visualization Graduate Program, CAMD, Northeastern University (January 20, 2016)

- ○ Invited Colloquium at the School of Information Resource Management, Renmin University (Beijing, China) (May 6, 2015)

- ○ Computational Research in Boston and Beyond Seminar Series, MIT (October 3, 2014)

- ○ IBM Data Visualization and Decision-Making Workshop (September 29, 2014)

- ○ Harvard-Heidelberg "Star Formation: Data, Models, and Visualization" Conference (June 23, 2014)

- Digital Futures Consortium at Harvard, "Visualizing the Arts, Humanities, and Sciences" (February 27, 2014)

- MIT "Rising Stars in EECS" Workshop (November 4, 2013)

- Harvard University-wide Computing General Meeting (November 1, 2013)

- Wellesley College Science Center Summer Research Program Seminar (June 27, 2013)

- Harvard University-wide Computing Visualization SIG Meeting (May 17, 2013)

- Harvard Applied Physics Department Festival 2013 (April 26, 2013)

- Boston Image Processing and Computer Vision Group (BIPCVG) Meet-up (April 17, 2013)

- Space Telescope Science Institute (STScI) Engineering and Technology Colloquium (February 5, 2013)

- .Astronomy 4 (July 10, 2012)

- Society for Scholarly Publishing (SSP)'s "The Next Frontier: Incorporating Interactive Visualizations in Online Journal Content" Webinar (May 20, 2010)

- ICSTI Winter Workshop 2010 (February 8, 2010)

- Panel co-organizer and speaker, "3D Visualization in Astronomy", Astronomical Data Analysis Software & Systems XVII (September 23, 200)

CONTRIBUTED TALKS

- IEEE VIS 2017, Pedagogy of Data Visualization Workshop, "Visualization Education Through Social Impact: A Service-Learning Approach for Visualization Pedagogy"

- IEEE InfoVis 2015, "Beyond Memorability: Visualization Recognition and Recall"

- IEEE InfoVis 2013, "What Makes a Visualization Memorable?"

- IEEE InfoVis 2013, "Evaluation of Filesystem Provenance Visualization Tools"

- IEEE InfoVis 2011, "Evaluation of Artery Visualizations for Heart Disease Diagnosis"

- IEEE VisWeek 2010 - Doctoral Colloquium, "Fluid Flow Visualization of Simulated with Observational Data Applied to Biophysics and Astrophysics"

- American Astronomical Society (AAS) Meeting 211 (2008), "A COMPLETE Survey of Outflows in Perseus"

- Astronomical Data Analysis Software and Systems (ADASS) XVII (2007), "3D Visualization and Detection of Outflows From Young Stars"

- American Astronomical Society (AAS) Meeting 209 (2007), "Application of Medical Imaging Software to the 3D Visualization of Astronomical Data"

- Astronomical Data Analysis Software and Systems (ADASS) XVI (2006), "Application of Medical Imaging Software to 3D Visualization of Astronomical Data"

FUNDING AWARDS

Current:

○ NSF SI2-SSE; $496,511 from October 1, 2017 - October 1, 2020. "SI2-SSE: Collaborative Research: A sustainable future for the glue multi-dimensional linked data visualization package" PI with Alyssa Goodman (Harvard).

Completed:

○ NSF CISE CRII; $174,800 from September 1, 2017 - August 31, 2020. "CRII: SCH: Multidimensional Tree Diagram Visualization for Linked Data Exploration" PI.

○ TIER 1: Seed Grant/Proof of Concept Program (Northeastern University); $50,000 from July 1, 2017 - March 31, 2019. "Inferring Argument Structure from Online and Live Conversations". Co-PI with Lu Wang (CCIS, Northeastern) and Nick Beauchamp (CSSH, Northeastern).

○ TIER 1: Seed Grant/Proof of Concept Program (Northeastern University); $50,000 from July 1, 2016 - September 30, 2017. "Designing Computerized Support Systems to Optimize Human Diagnostic Decision-Making" Co-PI with Peter Bex (COS, Northeastern)

○ Faculty Research and Creative Activity Incentive Grant (FRCAIG), CAMD (Northeastern University); $10,000 from January 1, 2016 - June 1 2017. "Visualizing the Lost Histories, Tragic Paths and Networked Opportunities of Refugee Scholars from Nazi Europe" Co-PI with Laurel Leff (CAMD, Northeastern) and John Wihbey (CAMD, Northeastern).

TEACHING & ADVISORSHIP

○ **Supervision of Postdoctoral Research Fellows:**
  - John Ackermann, Northeastern University
    (joint with Prof. Peter Bex, Psychology), July 2016 - December 2017

○ **Supervision of PhD Student theses and research:**
  - Laura South, Northeastern University '23
    (Computer Science Ph.D. Student), Fall 2016 - present

  - Uzma Haque Syeda, Northeastern University '23
    (Computer Science Ph.D. Student), Fall 2016 - present

  - Aditeya Pandey, Northeastern University '21
    (Computer Science Ph.D. Student), Fall 2016 - present

  - Michail Schwab, Northeastern University '20
    (Computer Science Ph.D. Student), Fall 2016 - Fall 2020

  - Penny Qian, Harvard-Smithsonian Center for Astrophysics '18
    (Astrophysics Ph.D. Student), Fall 2015 - Fall 2017

  - Nam Wook Kim, Harvard School of Engineering & Applied Science '19
    (Computer Science Ph.D. Student), Fall 2014 - Fall 2015

○ **Supervision of Masters Student research projects:**
  - Chaitya Shah, Northeastern University '20
    (DS MS Student), Summer & Fall 2018

  - Brigitte Pare, Northeastern University '18
    (ECE BS/MS Student), Spring 2017 - Fall 2017

  - Akshaya Kare, Northeastern University '17
    (CS MS Student), Fall 2017

○ **Supervision of Undergraduate and Summer Intern research projects:**

- Daniel Krasnonosenkikh, Northeastern University '23
  (Research Assistant), Spring-Summer 2019

- Chelsea Yeh, Harvard College '14
  (Research Assistant), Fall 2013
  (CS91r Independent Research Project), Summer 2012 - Spring 2013

- Azalea Vo, Harvard College '13
  (Computer Science Senior Thesis), Fall 2012 - Spring 2013

- Madelaine Boyd, Harvard College '12
  (Computer Science Senior Thesis), Fall 2011 - Spring 2012

- Daniel Borkin, Summer Intern
  (Summer Research Project), Summer 2013

- Sean Yeh, Summer Intern
  (Summer Research Project), Summer 2012

○ **Course Instruction & Creation:**

- **Computer Science 7295**: "Special Topics in Data Visualization" (Fall 2020), Northeastern University - graduate level course, seminar course with 2020 focus on evaluation studies in visualization

- **Computer Science 7250** (previously 7295, original course creator): "Information Visualization: Theory and Applications" (Spring 2018, Spring 2019), Northeastern University - graduate level course, counts towards PhD required course in HCI, Service-Learning

- **Honors 1310-11** (original course creator): "Beautiful Data: The Art and Science of Visualization" (Fall 2018), Northeastern University - freshman honors seminar, Service-Learning

- **Data Science 4200** (original course creator)**:** "Information Presentation and Visualization" (Spring 2017, Fall 2017, Spring 2021), Northeastern University - undergraduate level course, required for all Data Science degree candidates, Service-Learning

- **Computer Science 7280**: "Special Topics in Data Science" (Fall 2016), Northeastern University - graduate level course, seminar course with 2016 focus on visualization

- **Computer Science 171**: "Visualization" (2010-2013), Harvard University - undergraduate level course (served as teaching assistant, guest lecturer, and curriculum consultant over multiple offerings of the course).

○ **Guest Lectures:**

- CS 3950: "Introduction to CS Research" (October 7, 2020), Northeastern University.

- Data Science 2000: "Programming with Data" (March 12, 2018), Northeastern University.

- Computer Science 7295: "Network Visualization" (October 10, 2017), Northeastern University.

- Computer Science 7280: "Special Topics in Visualization in Network Science" (September 20, 2016), Northeastern University.

- Computer Science 547: "Information Visualization" (September 24, 2014), University of British Columbia.
- Empirical and Mathematical Reasoning 19: "The Art of Numbers" (April 17, 2012), Harvard University.

OUTREACH

○ **Service-Learning Teaching**
As part of the experiential learning curriculum I developed and teach for DS4200, I partner with Boston-area non-profit organizations to identify interesting data analysis and visualization needs of the partner organization as fodder for student final projects. The partnerships are made possible through a collaboration with the Northeastern University Center for Community Service. As part of the process I volunteer and work with each partner organization, and the students both complete their final project using data and tasks from an organization as well as volunteer at the organization. Partner organizations to date have included ABCD, Boston Cares, Boston Public School District, Chester Square Neighborhood Association (Boston), Massachusetts Promise Fellowship, and Mothers for Justice and Equality.

○ **Boston Latin Academy High School**, Guest Lecture in the Media and Design Course, Boston, MA (April 30, 2019)

○ **CS Women's Open House**, Invited Speaker, Featured faculty speaker at the annual open house for local high school girls interested in computer science, Northeastern University, (October 14, 2017, October 6, 2018)

○ **Women in Data Science** (Central Massachusetts), Invited speaker at the satellite location for the WiDS global conference, WPI (March 5, 2018)

○ **CafeSci** Boston, Invited Speaker, run by NOVA Education, WBGH (May 16, 2017)

○ **Graduate Women Coders (Northeastern University) 2017**, Invited speaker on April 3, 2017.

○ **NUWIT (Northeastern Women in Technology) 2017**, Invited speaker on February 13, 2017.

○ **HUBWeek 2016**
As part of HUBWeek, an annual Boston-based festival that celebrates innovation at the intersections of art, science, and technology, I co-organized the first HUBWeek hackathon. The event "Data Science, Journalism, and the Future of Justice" was held at Northeastern University on September 28, 2016. I was also an invited speaker at the event in which I discussed the important role of data science, including analytics and visualization, in our life and society.

○ **nuACM (Northeastern ACM Student Chapter) 2015**, Invited speaker on November 4, 2015.

○ **Grace Hopper Celebration of Women in Computing**, Northeastern CCIS Faculty Representative and exhibit booth volunteer (October 14-16, 2015).

○ **TED (Technology, Entertainment, Design)**
TED is a nonprofit organization devoted to "Ideas Worth Spreading", and hosts multiple conferences each year. TED also posts talks recorded at its conferences, as well as local TEDx events, to its website. I have given invited talks about my research at the following events:
- TED Speaker Series at State Street (November 20, 2013)
- TED Fellows Retreat 2013 (August 18, 2013)

- TEDxBoston 2011 (June 28, 2011)
- TED/SETI Summit 2010 (November 1, 2010)
- TEDGlobal 2009 (July 24, 2009)
- TEDGlobal 2009 - TED Fellows pre-conference (July 20, 2009)

My TEDxBoston talk is available online and has 130,000+ views:
http://www.ted.com/talks/michelle_borkin_can_astronomers_help_doctors.html

○ **Invited Talks**
In addition to my academic and STEM outreach talks, I also speak about my visualization research and cross-disciplinary collaboration experiences at business institutions as inspiration for entrepreneurial and innovative thinking. I have given invited talks about my research experiences at the following events:
- "The One" retreat, Dignity Health (September 19, 2017)
- "Senior Delegate Roundtable", Financial Technology Forum (June 19, 2015)
- "Way Ahead Conference", State Street (October 22, 2014)

○ **WISTEM Mentor (Fall 2009 - Spring 2014)**
Based at the Harvard College Women's Center, WISTEM (Women in Science, Technology, Engineering, and Mathematics) pairs female graduate students and research staff in the STEM fields as mentors to female undergraduates.

○ **SEAS Connect Program Mentor (Fall 2011 - Spring 2014)**
The SEAS (School of Engineering and Applied Sciences) Connect Program pairs upper year graduate students with an incoming first year student to act as a primary contact to answer questions and concerns regarding graduate student life.

○ **Grogan Symposium**
The Kenyon Bissell Grogan Humanities Symposium is held annually at the Brimmer and May School (Chestnut Hill, MA) in order to expose high schoolers to interesting and inspiring post-graduate careers. I gave invited talks and held workshops in the following years:
- "The Uses of Narrative" 2013
- "Innovations in Mathematics, Science and Technology" 2010

○ **SET (Science, Engineering, Technology) in the City - A Day of Career Exploration for High School Girls 2012**, Invited Speaker and Q&A panel participant

○ **Science Chicago's "Science Works!" 2009**, Invited Speaker and Demo Booth participant

○ **Cambridge Science Festival 2008**, "Cambridge Explores the Universe" at the Harvard-Smithsonian Center for Astrophysics, Demo booth host

○ **Undergraduate Peer Advisor for the Astronomy Department (September 2005 – June 2006)**

SELECT MEDIA COVERAGE

○ "Will the first VP debate tell us more about the 2020 election than Trump and Biden did?", News@Northeastern Article (October 6, 2020).

- "Novel Framework for Implementing Design Studies Wins Best Paper at CHI 2020", Khoury College of Computer Sciences, Northeastern University Press Release (May 28, 2020).

- "Khoury Ph.D. Candidate Wins Prestigious NSF Fellowship", Northeastern University Press Release (September 20, 2019).

- "PhD Student Aditeya Pandey Wins IEEE "Best Poster Award" for Research that Helps Doctors Diagnose Brain Disease", Northeastern University Press Release (November 29, 2018).

- "What Makes A Visualization Memorable? with Michelle Borkin", Data Stories Podcast (January 17, 2018).

- "The Forgotten Women Scientists Who Fled the Holocaust for the United States", Smithsonian Magazine (November 9, 2017).

- "Professors Uncover Lost Stories of WWII Refugee Scholars", Northeastern University Press Release (October 25, 2017).

- "Hackathon examines power of Big Data to change lives", Northeastern University Press Release (September 30, 2016).
    - Featured on The Huntington News, The Daily Free Press.

- "Should data experts and journalists collaborate more?", The GroupTruth Project (September 29, 2016).

- "HUBweek: Explore and celebrate the future being built in Boston", Northeastern University Press Release (September 27, 2016).

- What happened in Vis in 2015? Year Review with Andy Kirk and Robert Kosara", Data Stories (podcast) (December 20, 2015).

- "Investigating the network: The top 10 articles from the year in digital news and social media research", Nieman Journalism Lab (December 11, 2015)

- "How to make better visualizations", MIT Press Release (November 5, 2015)
    - Featured on ScienceBlog, Phys.org, and El Universal. Also posted as a Harvard Press Release.

- "What makes a data visualization memorable?", The World Bank (Blog) (November 5, 2015)

- "Tip: Check out this advice for creating memorable data visualisations", Journalism.co.uk (November 4, 2015)

- "The Science of Visualization", Scientific American (Blog) (November 3, 2015)

- "Understanding what makes a visualization memorable", Storybench (November 3, 2015)

- "Why 'Big Data' Is a Big Deal", Harvard Magazine (March/April, 2014).

- "Grasping with the eyes", Harvard Gazette (March 5, 2014).

- "What makes a data visualization memorable?", Harvard SEAS Press Release (October 16, 2013)
    - Featured on Fast Company's "Co.Design" Blog, Boston.com, HPC Wire, Phys.org, and ScienceCodex.

- "How Brain Scans Can Help Astronomers Understand Stars", Scientific American (Blog) (January 9, 2012)

○ "Busting Assumptions about Rainbows and 3-D Images", Biomedical Computation Review (January 2, 2012)

○ "To diagnose heart disease, visualization experts recommend a simpler approach", Harvard SEAS Press Release (October 21, 2011)

  Featured on the Harvard Gazette, PhysOrg.com, ScienceDaily, e! Science News, VizWorld, Vision Systems Design, Scientific Computing, and Communications of the ACM.

○ "Multidisciplinary CTA research could improve CAD screening accuracy", Cardiovascular Business (June 20, 2011).

  Featured on Health Imaging & IT.

○ "Is There an Astronomer in the House?", Science (February 11, 2011).

○ "New Visualization Techniques Yield Star Formation Insights", Harvard-Smithsonian Center for Astrophysics Press Release (December 31, 2008)

  Featured on HarvardScience.

○ "Revolutionary Minds: The Re-Envisionaries", SEED Magazine, (July/August, 2008).

○ "3-D Medical Imaging Reaches the Stars", Harvard-Smithsonian Center for Astrophysics Press Release (March 27, 2007)

  Featured on the Boston Globe, Advanced Imaging Pro, RedOrbit, Spaceflight Now, and PhysOrg.com.

PROFESSIONAL ACTIVITIES

○ **Conference & Program Committees**
  • Conference Committee, IEEE VIS
    - Co-Chair, Short Papers (2021)
    - Co-Chair, Inclusivity & Diversity (2018, 2019)
    - Co-Chair, VisKids (2017)
  • Co-Organizer, Visualization for Social Good Workshop, IEEE VIS 2021
  • Panel Co-organizer, "Vis for Social Good", IEEE VIS 2020
  • Tutorial Co-organizer, "Vis for Social Good", IEEE VIS 2019
  • Program Committee, BELIV Workshop (Beyond Time And Errors: Novel Evaluation Methods For Visualization), co-located with IEEE VIS (2016, 2020)
  • Program Committee, InfoVis (Information Visualization), IEEE VIS (2017-2019)
  • Co-Organizer, Radcliffe Institute for Advanced Study Exploratory Seminar, "A New Multidisciplinary Approach to Data Understanding", November 7-9 2012 (https://sites.google.com/site/radcliffemultidim/)

○ **Journal and Conference Paper Reviewing**
  • ACM CHI (Computer Human Interaction) (2014, 2015, 2016, 2018, 2019, 2021)
  • BELIV Workshop (2016, 2020)
  • Computer Graphics Forum (2017)
  • EuroVis (2012, 2013, 2015, 2016)

- IEEE Information Visualization (InfoVis) (2013, 2014, 2015, 2017, 2018, 2019, 2020)
- Information Visualization (2017)
- IEEE Pacific Visualization (2015, 2019)
- IEEE TVCG (Transactions on Visualization & Computer Graphics) (2013, 2015, 2016, 2017, 2018)
- ACM Transactions on Interactive Intelligent Systems (2015)
- Pacific Graphics Proceedings (2013)
- PASP (Publications of the Astronomical Society of the Pacific) (2013)
- ACM UIST (User Interface Software and Technology) (2012)

- ○ **Grant Review Panels**
  - NSF (National Science Foundation) (2017)

- ○ **Society Memberships and Boards**
  - Member of the Association for Computing Machinery (ACM)
  - Member of the Institute of Electrical and Electronics Engineers (IEEE)
  - Member of the Alumni Board, Brimmer and May School

PUBLICATIONS & CONFERENCE PROCEEDINGS

Thesis: **Borkin, M.**, 2014, "Perception, Cognition, and Effectiveness of Visualizations with Applications in Science and Engineering", Ph.D. Thesis, School of Engineering & Applied Sciences, Harvard University.

Journal & Conference Papers:

Lan, F., Young, M., Anderson, L., Ynnerman, A., Bock, A., **Borkin, M. A.**, Forbes, A. G., Kollmeier, J., & Wang, B., 2021, "Visualization in Astrophysics: Developing New Methods, Discovering Our Universe, and Educating the Earth", STAR, EuroVis 2021, (*conditionally accepted for publication*).

Pandey, A., Syeda, U. H., Shah, C., Guerra-Gomez, J. A., & **Borkin, M. A.**, 2021, "A State-of-the-Art Survey of Tasks for Tree Design and Evaluation with a Curated Task Dataset", *IEEE Transactions on Visualization and Computer Graphic*s, accepted for publication.

Schwab, M., Saffo, D., Bond, N., Sinha, S., Dunne, C., Huang, J., Tompkin, J., & **Borkin, M. A.**, 2021, "Scalable Scalable Vector Graphics: Fast Drop-In Rendering for D3.js", *IEEE Transactions on Visualization and Computer Graphics*, accepted for publication.

Schwab, M., Pandey, A., & **Borkin, M. A.**, 2021, "Evaluation of 1D Selection Techniques for Mobile Visualizations", Late-Breaking Work, *Conference Proceedings of CHI 2021* in Yokohama, Japan, May 8-13, 2021.

South, L., Saffo, D., & **Borkin, M. A.**, 2021, "Detecting and Defending Against Seizure-Inducing GIFs in Social Media", *Conference Proceedings of CHI 2021* in Yokohama, Japan, May 8-13, 2021. <u>**CHI Honorable Mention Award**</u>

Schwab, M., Saffo, D., Zhang, Y., Sinha, S., Nita-Rotaru, C., Tomkin, J., Dunne, C., & **Borkin, M. A.**, 2021, "VisConnect: Distributed Event Synchronization for Collaborative Visualization", *IEEE Transactions on Visualization and Computer Graphics (Proceedings of IEEE InfoVis 2020)*, 27, 2, 347-357.

Ahmed, A., & **Borkin, M. A.**, 2020, "Data Visualization for Transgender Voice Training", Short Paper, *Conference Proceedings of IEEE VIS 2020*, virtual event, October 25-30, 2020.

South, L., Schwab, M., Beauchamp, N., Wang, L., Wihbey, J., & **Borkin, M. A.**, 2020, "DebateVis: Visualizing Political Debates for Non-Expert Users", Short Paper, *Conference Proceedings of IEEE VIS 2020*, virtual event, October 25-30, 2020.

Syeda, U. H., Murali, P., Roe, L., Berkey, B., & **Borkin**, M. A., 2020, "Design Study "Lite" Methodology: Expediting Design Studies and Enabling the Synergy of Visualization Pedagogy and Social Good", *Conference Proceedings of CHI 2020* in Honolulu, Hawaii, April 27-30, 2020. **CHI Best Paper Award**

Di Bartolomeo, S., Pandey, A., Leventidis, A., Saffo, D., Syeda, U. H., Carstensdottir, E., Seif El-Nasr, M., **Borkin**, M. A., & Dunne, C., 2020, "Shapeshifting Timelines: Evaluating the Effect of Timeline Shape on Visualization Task Performance", *Conference Proceedings of CHI 2020* in Honolulu, Hawaii, April 27-30, 2020.

Pandey, A., Shukla, H., Young, G., S., Qin, L., Zamani, A. A., Hsu, L., Huang, R., Dunne, C., & **Borkin, M. A.**, 2020, "CerebroVis: Designing an Abstract yet Spatially Contextualized Cerebral Artery Network Visualization", *IEEE Transactions on Visualization and Computer Graphics (Proceedings of IEEE InfoVis 2019)*, 26, 1, 938-948.

Schwab, M., Tomkin, J., Huang, J., & **Borkin, M.**, 2019, "EasyPZ.js: Interaction Binding For Pan and Zoom Visualizations", Short Paper, *Conference Proceedings of IEEE VIS 2019* in Vancouver, Canada, October 22-25, 2019.

Schwab, M., Hao, S., Vitek, O., Tomkin, J., Huang, J., & **Borkin, M.**, 2019, "Evaluating Pan and Zoom Timelines and Sliders", *Conference Proceedings of CHI 2019* in Glasgow, Scotland, May 4-9, 2019.

Kim, N., Bylinskii, Z., **Borkin, M.**, Gajos, K., Oliva, A., Durand, F., & Pfister, H., 2017, "BubbleView: an alternative to eye-tracking for crowdsourcing image importance", *ACM Transactions on Computer-Human Interaction (TOCHI)*, 24, 5, 36:1–36:40.

Bylinskii, Z., **Borkin, M. A.**, Kim, N. W., Pfister, H., and Oliva, A., 2017, "Eye Fixation Metrics for Large Scale Evaluation and Comparison of Information Visualizations", in *Eye Tracking and Visualization*, eds. Burch, et al., Mathematics and Visualization, Springer International Publishing.

Borkin, M., Bylinskii, Z., Kim, N., Bainbridge, C., Yeh, C., Borkin, D., Pfister, H., & Oliva, A., 2016, "Beyond Memorability: Visualization Recognition and Recall", *IEEE Transactions on Visualization and Computer Graphics (Proceedings of InfoVis 2015)*, 22, 1, 519-528.

Kim, N., Bylinskii, Z., **Borkin, M.**, Oliva, A., Gajos, K., & Pfister, H., 2015, "A Crowdsourced Alternative to Eye-tracking for Visualization Understanding", *Proceedings of the 33rd Annual ACM Conference Extended Abstracts on Human Factors in Computing Systems (CHI '15)*, 1349-1354.

Goodman, A., Alves, J., Beaumont, C., Dame, T., Jackson, J., Kauffmann, J., Robitaille, T., Pepe, A., **Borkin, M.**, Burkert, A., Benjamin, R., 2014, "The Bones of the Milky Way", *Astrophysical Journal*, 797, 53.

Borkin, M., Yeh, C., Boyd, M., Macko, P., Gajos, K. Z., Seltzer, M., & Pfister, H., 2013, "Evaluation of Filesystem Provenance Visualization Tools", *IEEE Transactions on Visualization and Computer Graphics (Proceedings of InfoVis 2013)*, 19, 12, 2476-2485.

Borkin, M., Vo, A. A., Gavrilov, Z., Isola, P., Sunkavalli, S., Oliva, A., & Pfister, H., 2013, "What makes a visualization memorable?", *IEEE Transactions on Visualization and Computer Graphics (Proceedings of InfoVis 2013)*, 19, 12, 2306-2315.

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