MATTHEW BREHMER

INFORMATION VISUALIZATION SPECIALIST

CONTACT

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REFERENCES

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I am a recognized expert in the field of information visualization, a practice that brings together data analysis, software development, HCI / UX methods, and design. My open-source visualization work can seen and used online and in Microsoft's Power BI. I have spoken about my work at venues such as OpenVisConf, IEEE VIS, and ACM CHI, and I have published several papers about my work in IEEE Transactions on Visualization & Computer Graphics, the top visualization journal.

TECHNICAL SKILLS

Visualization development: *D3.js, Processing / P5.js, ggplot2, Flare / Prefuse.*
Programming: *Web application development with JavaScript, HTML, CSS, ActionScript.*
Data analysis: *Exploratory analysis with R, Tableau, Power BI; Statistical analysis with R.*
Design + wireframing: *OmniGraffle, Photoshop, Visio, Shiny, Keynote.*

UX SKILLS + METHODS

Quantitative: *Conducting experiments in laboratory settings or with crowdsourcing platforms.*
Qualitative: *Requirements analysis, interviews, focus groups, think-aloud protocols.*
Design: *Low-fidelity to high-fidelity prototyping; responsive and mobile-first visualization design.*

EDUCATION

PhD, Computer Science, Focus Area: Information Visualization   2011 - 2016
The University of British Columbia, Vancouver BC Canada

MSc, Computer Science, Specialization in Human-Computer Interaction   2009 - 2011
The University of British Columbia, Vancouver BC Canada

B. Computing (Honours), Specialization in Cognitive Science   2004 - 2009
Queen's University, Kingston ON Canada

EMPLOYMENT EXPERIENCE

Postdoctoral Researcher - Microsoft Research, Redmond WA, USA   2016 - 2019

Developed Timeline Storyteller, an application for the web and Power BI. Led new research initiative on interactive data visualization for mobile devices. Consulted with product, research, and outreach teams, including Microsoft's Data Journalism Team.

Research Intern - Microsoft Research, Redmond WA, USA   2015

Conducted research on the design space of timeline visualization. Developed a narrative visualization prototyping sandbox incorporating animation and annotation.

Research Intern - Pulse Energy, Vancouver BC, Canada   2013 - 2014

Conducted human-centred visualization R&D while embedded in the product development and data science teams of a commercial energy analytics startup.

Research Assistant - Queen's School of Computing, Kingston ON Canada   2009

Developed GAIM, a device-agnostic C#/XNA toolkit for exercise video game development, one that allows people with different input peripherals to play together.

Front-End Dev. / UX Design Intern - EMC Documentum, Toronto ON Canada   2007 - 2008
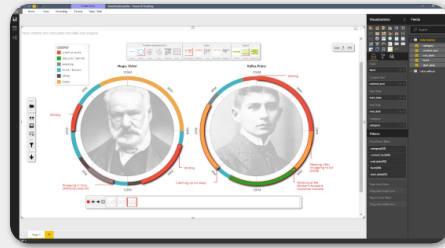
Performed requirements analysis, user interface design, and front-end development for a rich media content management web application intended for the automotive sector.

IT Staff / Web Developer - Killam Properties, Halifax NS Canada   2006

Maintained content on the website of a residential property management firm.
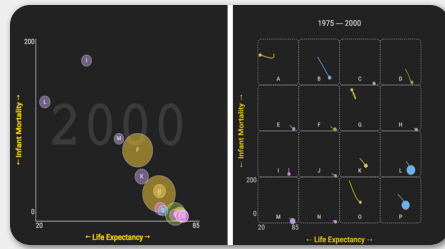
SELECTED OPEN SOURCE VISUALIZATION PROJECTS

For a complete list of projects with links to applications, visit mattbrehmer.github.io.

TIMELINE STORYTELLER

An interactive authoring tool for producing expressive visual narratives about timeline data; deployed as a web application and as an extension for Microsoft Power BI; exports images or iFrame presentations.
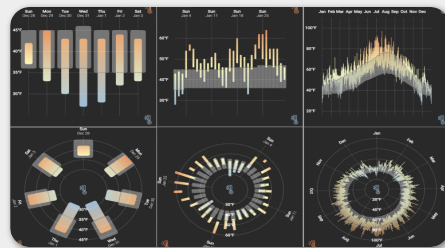
☑ timelinestoryteller.com
☑ github.com/Microsoft/timelinestoryteller

TREND VISUALIZATION ON MOBILE PHONES

An experimental application used to assess animation and small multiples for visualizing multivariate trends on mobile phones, motivated by the rise of looped animated news graphics.
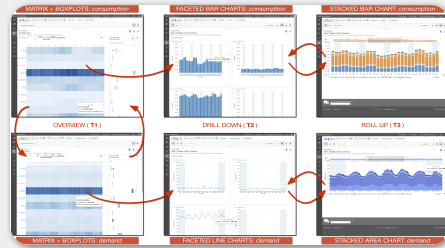
☑ github.com/Microsoft/MobileTrendVis

VISUALIZING RANGES ON MOBILE PHONES

Alternative visual representations of ranges designed for mobile phones, motivated by the increasing prevalence of apps and online news reporting on data relating to personal health, climate, and finance.

☑ aka.ms/ranges-tvcg
☑ github.com/Microsoft/RangesOnMobile

VISUALIZATION FOR ENERGY CONSERVATION

An iterative human-centred design process resulted in a series of prototype visual analysis tools for monitoring the energy consumption of large building portfolios (industry partner: Pulse Energy).

☑ aka.ms/matches_mismatches
☑ github.com/mattbrehmer/PortfolioSandbox

SELECTED TALKS / VIDEOS

For a complete list of talks with links to slides, visit mattbrehmer.github.io/#talks.

Visualizing Ranges over Time on Mobile Phones   2018 / 10 / 24
IEEE VIS 2018
▶ vimeo.com/299859980

The Timeline Storyteller Custom Visual for Power BI   2017 / 09 / 15
Microsoft Power BI YouTube Channel
▶ youtu.be/bwiMfwBVsSQ

What Story Does Your Timeline Tell?   2017 / 04 / 24
OpenVisConf 2017
▶ youtu.be/gQKUI_1ryo4

RESEARCH PUBLICATIONS

As of April 2019, I have published 16 articles in leading visualization and human-computer interaction journals and conferences proceedings (8 as lead author). For a complete list of my publications with links to PDFs, visit mattbrehmer.github.io/#pubs.