# 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

**BComp, 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.*

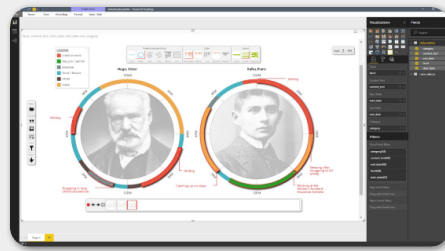**Research Assistant - Queen's School of Computing, Kingston ON Canada**    2009

*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.*

## SELECTED OPEN SOURCE VISUALIZATION PROJECTS

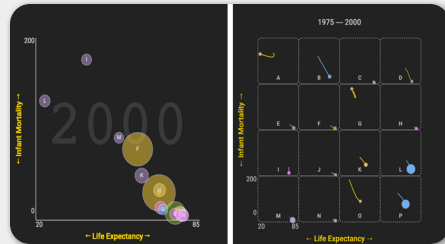For a complete list of projects with links to applications, visit mattbrehmer.github.io.



### 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.
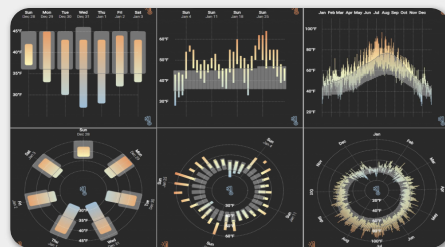
☑ timelinestoryteller.com
☑ github.com/Microsoft/timelinestoryteller



### 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.

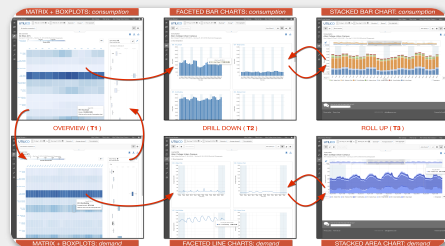☑ github.com/Microsoft/MobileTrendVis



### 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.