Michael Brooks

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I am a researcher with a passion for making complex technology more useful. My academic work has focused on data analytics & visualizations for social scientists, usable machine learning, and text analytics. My background in Computer Science, Human Centered Design, and Human Computer Interaction lets me see problems from multiple perspectives. I am looking for industry opportunities to contribute my versatile toolbox of research, design, and development skills to solve tough technical and socio-technical problems.

Skills

Research. Qualitative methods, experiments and quantitative analysis, research communication.

Human Centered Design. Iterative design, ethnographic research, participatory design, usability studies.

Data Science. Databases, machine learning, visualization, statistics.

Software Development. Python, JavaScript, PHP, C#, Java.

Web Development. Python & PHP web frameworks, JavaScript frameworks, D3, REST, CSS/HTML.

Experience

Dissertation research, University of Washington, with Cecilia Aragon   2012-2015

Human-centered design of machine learning and visualization tools for researchers working with text-based big social data (e.g. Twitter, chat).

- Conducted formative ethnographic interviews and observations of work processes to discover user needs & constraints.
- Developed ALOE, a machine learning solution for amplifying human qualitative analysis work in data intensive scenarios [CSCW 2013, GitHub].
- Designed and developed Agave, a web-based visualization and exploratory analysis tools for brainstorming in small group projects [Demo, GitHub].
- Led multiple groups of 3-10 collaborators through problem finding, design, development, evaluation, and publication phases of research process.

Research Intern, Microsoft Research, with Saleema Amershi   2014

Help machine learning practitioners more easily think of ideas for new features in text classification and other machine learning problems [VAST 2015].

- Iteratively designed and developed FeatureInsight, a system supporting ideation and development of dictionary text features.
- Found visual summary and aggregation produced stronger features, compared to standard featuring algorithms.

Research Intern, Microsoft Research, with Sumit Basu 2013

Enable teachers to manually grade thousands of short answer responses efficiently, to improve learning and feedback in massive online courses [LAS 2014, Video & Data].

- Designed and implemented web-based application for browsing, grading, and giving feedback on hierarchically clustered short answer question responses.
- Evaluated system vs. a baseline in an online study with teachers; clustering allowed faster grading without loss of accuracy, and increased the reach of feedback.

User Experience Research Intern, Google, with Zhiwei Guan 2012

Research project on search and app information-seeking on mobile devices. Conducted usability studies in cooperation with product teams.

- Developed web-based application for running a large-scale mobile information-seeking diary study. Deployed and managed study participants. Cleaned and analyzed data for UX team.
- Worked with product teams and other UX researchers and designers to design and carry out usability studies on Google Search features.

Education

Ph.D. in Human Centered Design and Engineering 2010-2015
 University of Washington
 Dissertation: *Human Centered Tools for Analyzing Online Social Data*

M.S. in Human Centered Design & Engineering 2010-2013
 University of Washington
 Concentration in User-Centered Design

B.A. with High Honors, Computer Science, Mathematics 2006-2010
 Oberlin College
 Thesis: *Developing Visualization Software for Musicians*

Selected Publications

Brooks, M., Amershi, S., Lee, B., Drucker, S., Kapoor, A., Simard, P. FeatureInsight: Visual Support for Error-Driven Feature Ideation in Text Classification. Proc. *VAST 2015*. [PDF]

Brooks, M., Basu, S., Jacobs, C., Vanderwende, L. Divide and Correct: Using Clusters to Grade Short Answers at Scale. Proc. *Learning at Scale 2014*. [PDF, Paper, Video, Data]

Brooks, M., West, J. D., Aragon, C. R., Bergstrom, C. T. Hoptrees: Branching History Navigation for Hierarchies. Proc. *INTERACT 2013*. [PDF, GitHub, Demo]

Brooks, M., Kuksenok, K., Torkildson, M. K., Perry, D., Robinson, J. J., Scott, T. J., Anicello, O., Zukowski, A., Harris, P., Aragon, C. R. Statistical Affect Detection in Collaborative Chat. Proc. *CSCW 2013*. [PDF GitHub]

See website for full list.