| Paper | Used ML? | User Study? | Directly relevant to project? (Sunwoo) | Directly relevant to project? (Shayan) | Directly relevant to project? (Alvitta) | Useful Data? | Notes |
|---|---|---|---|---|---|---|---|
| Srinivasan et al. (2018) [SPEB18] | No | No | No | | | | |
| Setlur et al. (2016) [SBT*16b] | No | No | No | | | | Minor user study with 12 participants |
| Dabek and Caban (2016) [DC16] | Yes | Yes (small) | No | No | | No | Actions performed by user stored in final state machine |
| Mutlu et al. (2016) [MVT16] | No | No | No | | | | |
| Chen et al. (2014) [CQW*14] | No | Yes | No | | | No | with user interactions, create a DAG (directed accyclic graph) |
| Koch et al. (2014) [KBGE09] | No | No | No | | | | PatVis - interactive analysis of pantnet info, leverage iterative query refinement |
| Scheepens et al. (2015) [SMvdWvW15] | No | No | No | | | | |
| Shrinivasan and van Wijk (2009) [SvW09] | No | No | No | | | | |
| Gotz and Wen (2009) [GW09] | Yes | Yes | No | | | No | Recommend visualizations by monitoring user behavior |
| Endert (2014) [End14] | No | No | No | | | | Semantic Interaction for VA (impact paper) |
| Endert et al. (2012) [EFN12a] | Yes | Yes (small) | No | | | No | ForceSPIRE used to support sensemaking |
| MacInnes et al. (2010) [MSW10] | Yes | Yes (small) | No | No | | No | Classify user interaction with software app for intelligence analysis (used kmeans?) |
| Boukhelifa et al. (2013) [BCBL13] | Yes | Yes (small) | No | | | No | Aid exploration of multidimensional datasets with visual analytics and stochastic optimization |
| Endert (2015) [ECNZ15] | No | No | No | | | | Report discussions genereated during PNNL workshop in form of claims and design guidelines for next gen of VA systems |
| Ottley et al. (2019) [OGW19] | Yes | Yes | Yes | Yes | | Yes | HMM paper |
| Gotz et al. (2016) [GSC16] | Yes | Yes (small) | Maybe (Depends on the user providing constrainst/filters for the data) | Yes, with small modification (let's implement the Hellinger distance where we give it H (d_u, d_i) where d_u is the underlying data and d_i is the interaction points.) Only applies to bias detection | | No | Combating bias using adaptive contextualization during high dimensional visualization and data selection |
| Healey and Bennis (2012) [HB12] | Yes | No | Maybe | Yes (gotta look at BBNC) | | | Use Bayesian classifiers to learn a user's preferences, and applt that knowledge to identify interesting data elements |
| Hu et al. (2019) [HBL*19] | Yes | No | No | | | | Visualization reccomendation |
| Correll and Gleicher (2016) [CG16] | No | Yes | No | | | No | visual query systems for time series data |
| Setlur et al. (2019) [STD19] | No | Yes | No | | | No | Generate useful visualization responses to underspecified utterances |
| Steichen et al. (2014) [SCC14] | Yes | Yes | No | | | No | Use eye gaze patterns to predict properties of the user's visualization task |
| Guo et al. (2019) [GDM*19] | No | Yes (small) | No | | | No | Novel visualization for exploring event sequence predictions |
| Wang et al. (2014) [WCW*14] | No | No | No | | | | VA system that evaluates real traffic situations based on taxi trajectory data |
| Lee et al. (2019) [LDH*19] | No | Yes | No | | | No | VA system that helps users avoid drill-down fallacies (def of drill down: is the understanding of the behavior of data subsets by progressively adding filters) |
| Ceneda et al. (2019) [CGM19] | No | No | No | | | | Review of papers dealing with guidance to support visual analysis tasks |
| Ragan et al. (2015) [RESC15] | No | No | No | | | | Presented an organizational framework for clarifying the type of provenance information captured and the purpose for how it will be used. |
| Micallef et al. (2017) [MSM*17] | Yes | No | No | | | | Approach for eliciting tacit knowledge from domain experts and using it as prior knowledge to improve the accuracy of prediction models |
| Wegba et al. (2018) [WLLW18] | Yes | Yes (small) | No | | | No | Proposed Latent Semantic Model that captures the statistical features of semantic concepts on 2D domains and abstracts user preferences for personal recommendation |
| Toker et al. (2014) [TSG*14] | Yes | No | No | | | | Used prediction models that are trained on users' gaze data in order to ease the so-called 'learning curve' during a user's skill acquisition phase |
| Steichen and Conati (2013) [SCC13] | Yes | No | No | | | | Predict user's current visualization task and long-term cognitive abilities with eye gaze data |
| Khan and Nandi (2019) [KN19] | No | Yes (small) | No | | | No | System that approximates caching for Physics-based Data Interaction |
| Sacha et al. (2018) [SKB*18] | Yes | Yes (small) | No | | | No | Uses Self-Organizing Maps for iterative cluster refinement for analyzing time-series data |
| Walch et al. (2019) [WSL*19] | Yes | Yes (small) | No | | | No | LightGuider: enhances interactive lighting design with visual analytics |
| Dextras-Romagnino and Munzner (2019) [DM19] | No | No | No | | | | Segmentifier: supports an iterative process of refining collections of action sequences (clickstream data) into meaningful segments. |
| Ren et al. (2019) [RLB19] | No | Yes (small) | No | | | No | An interactive authoring tool that enables the creation of bespoke and reusable chart layouts |
| Bors et al. (2019) [BGM19] | No | Yes (small) | No | | | No | Captures workflow provenance along the data wrangling process |
| Shadoan and Weaver (2013) [SW13] | No | No | No | | | | |
| Gomez and Laidlaw (2012) [GL12] | No | Yes (small) | No | | | No | framework that helps developers quantitatively evaluate user interfaces and design iterations by using histories from crowds of end users |
| Liu et al. (2017) [LWD*17] | No | No | No | | | | utilizes sequence mining on clickstream data to understand/find patterns |
| Smuc et al. (2009) [SML*09] | No | No | No | | | | |
| Bylinksii et al. (2017) [BKO*17] | Yes | Yes | No | | | No | learned visual importance for graphic designs with neural networks |
| Fröhler et al. (2016) [FMH16] | Yes | No | No | | | | |
| Blascheck et al. (2016) [BJK*16] | No | No | No | | | | VA system that helps evaluate VA applications |
| Moritz et al. (2015) [MHHH15] | No | No | | No | | | Very minor use-case study |
| Wongsuphasawat et al. (2016) [WMA*16] | Maybe | Yes | | No | | | Not really ML; but uses heuristics to recommend visualizations for a dataset |
| Muthumanickam et al. (2016) [MVCJ16] | No | No | | No | | | Searching time series by user sketch; small case study |
| Hoque et al. (2018) [HSTD18] | Yes | Yes | | No | | | Unrelated IMO; Speech to visualization mapping; Uses natural language to generate plots |
| Weaver (2009) [Wea09] | No | No | | No | | | |
| Ferreira et al. (2013) [FPV*13] | Maybe | No | | No | | | Strategy for visualizing taxi trips (temporal data); small case study |
| Kadivar et al. (2009) [KCD*09] | No | No | | No | | | |
| Shrinivasan et al. (2009) [SGL09] | No | No | | No | | | Show old notes that may be relevant to the current query; Relevant score (not reall ML); Small case study |
| Schlinder et al. (2013) [SWR*13] | No | No | | No | | | |
| Kwon et al. (2017) [KKW*17] | Yes | No | | Maybe | | | We like their underlying high dimensional dataset; |
| Bradel et al. (2014) [BNHL14] | No | No | | No | | | It's for text and force-directed visualizations; there is an algorithm proposed update vis weights in light of interactions; |

| Paper | Used ML? | User Study? | Directly relevant to project? (Sunwoo) | Directly relevant to project? (Shayan) | Directly relevant to project? (Alvitta) | Useful Data? | Notes |
|---|---|---|---|---|---|---|---|
| Pezzotti et al. (2015) [RWF*13b] | No | No | | No | | | |
| Brown et al. (2012) [BLBC12] | Yes | No | | No | | | Dis-Function; Small case study of size 10; move data around on a 2d canvas |
| Endert et al. (2012) [EFN12a] | No | No | | No | | | |
| Cook et al. (2015) [CCI*15] | Maybe | No | | Maybe | | | The primary contribution is on guidelines. They talk about an ad-hoc task recognition and data relevance model, but there are close to no details. |
| Kunkel et al. (2017) [KLZ17] | Maybe | Yes | | Maybe | | | User study on a movie dataset; Primary contribution is to visualize the space covered by recommendation systems |
| Kim et al. (2016) [KCPE16] | No | No | | No (consider for HDR) | | | It's on visualizing high dimentional data on scatterplots in a user-driven manner (as opposed to dimensionality reduction techniques) |
| Fuchs et al. (2009) [FWG09] | Yes | No | | No (consider for HDR) | | | Visualizing high dimensional data on scatterplots to reveal patterns (using AI to search various configurations) |
| Brown et al. (2014) [BOZ*14] | Yes | Yes | | No | | | Finding Waldo; the ML side is not directly relevant to our work; |
| Cavallo and Demiralp (2018) [CD18] | Yes | No | | No | | | VA system for inspecting ML classifiers |
| Ribicic et al. (2013) [RWF*13a] | No | No | | No | | | |
| Hossain et al. (2012) [HOG*12] | Yes | No | | No | | | Incorporating human knowledge into clustering algorithms; proposes an interaction scheme called "scatter/gather" |
| Sherkat et al. (2018) [SNMM18] | Yes | Yes (small) | | No | | | Incorporating human feedback in document clustering |
| Gao et al. (2015) [GDA*15] | Maybe | Yes (small) | | No | | | Natural language interface to visually explore data |
| Hottelier et al. (2014) [HBR14] | No | Yes (small) | | No | | | Generating visualizations without programming (through an interactive interface instead) |
| Callahan et al. (2006) [CFS*06] | No | No | | No | | | |
| Rübel and Bowen (2018) [RB18] | Maybe | No | | No | | | Mainly a visualization tool to explore brain image data; It also uses some ML to group images together |
| Kandel et al. (2011) [KPHH11] | Maybe | Yes (small) | | No | | | Wrangler; observes interactions and suggests future data transformations |
| Chung et al. (2010) [CYM*10] | No | No | | No | | | Interface for multiple analysts to collaborate on analyzing text |
| Gotz et al. (2017) [GSC*17] | No | Yes (small) | | Yes (Adaptive Contextualization) | | | They propose a bias metric similar to Emily Wall's; Their user study involves a sequence of filtering interactions; might be useful for bias detection |
| Xu et al. (2018) [XBL*18] | No | Yes (small) | | No | | | Users inspect existing visualizations of the data to answer questions; can we predict which visualization they'll interact with next? We'd need to encode a visualization into structured data |
| Loorak et al. (2018) [LTC18] | No | Yes (small) | | No | | | Tracking visual design changes over time |
| Smith et al. (2018) [SLMK18] | Yes | Yes (small) | | | | | I don't understand this paper; using ML and eye tracking data to predict user confidence in decision making? |
| Stitz et al. (2019) [SGP*19] | Maybe | No | | No | | | |
| Andrienko et al. (2011) [AAM*11] | No | No | | No | | | |
| Cappers and van Wijk (2018) [CvW18] | No | No | | No | | | |
| Zgraggen et al. (2015) [ZDFD15] | | | | | | | This is a presentation? |
| Ragan et al. (2015) [RGT15] | No | Yes | | No | | | |
| Walker et al. (2013) [WSD*13] | Maybe | No | | No | | | |
| Porteous et al. (2010) [PCC10] | No (AI Planning) | No | | No | | | Story telling using AI planning algorithms |
| Mathisen et al. (2019) [MHK*19] | No | No | | No | | | |
| Gratzl et al. (2016) [GLG*16] | No | No | | No | | | |
| Choe et al. (2015) [CLs15] | No | No | | No | | | |
| Willett et al. (2013) [WGS*13] | no | yes | | | | | strategies that utilize multiple workers to detect redundant explanations. Task: Wikipedia articles; captured workers' browsing behavior |
| Bors et al. (2019) [BWD*19] | no | no | | | | | proposed a provenance task abstraction framework (seem odd that we listed this) |
| Bors et al. (2019) [BWD*19] | no | yes | | | | | presents  a system that captures and visualizes provenance from data wrangling operations |
| Wall et al. (2018) [WDC*18] | yes | yes | | | no | | observed users table ranking and learns the attributes that might inform their understanding of the data; includes a small case study |
| Liu et al. (2017) [LKD*17] | yes | no | | | no | | analysize event sequences |
| Cho et al. (2017) [CWK*17] | no | yes | | | | | looks at how visual anchoring influences interaction behavior |
| Blascheck (2018) [BVV*18] | yes | yes | | | no | no | collect interaction logs to see how peole discover visualization functionalities. They collected eye tracking data |
| Dou et al. (2009) [DJS*09] | no | yes | | | | | wirevis paper |
| Boukhelifa (2019) [BBT*19] | no | yes | | | no | no | study on how experts explore data. Data collected was qualitative |
| Guo et al. (2015) [GGZL15] | no | yes | | | no | maybe | Ues the Gastech data to learn about how people arrive at insights |
| Feng et al. (2019) [FPH19] | yes | yes | | | yes | yes | Patterns and Pace project; Used Well et al. bias metrics; Shayan used dataset in competing models paper |
| Battle and Heer (2019) [BH19] | no | yes | | | no | naybe | captured interaction with tableau. |
| Nguyen et al. (2018) [NTA*18] | no | yes | | | no | no | va system for identificating and investigating of 'unsual' action sequences |
| Wei et al. (2012) [WSSM12] | yes | yes | | | no | no | va system for exploring clickstream clusters on webpages. Uses EM algorihtm |
| Blascheck et al. (2016) [BBB*16] | no | yes | | | no | no | va system "which integrates rich user data including transcripts, videos, eye movement data, and interaction logs." |
| Toker et al. (2017) [TLC17] | yes | yes | | | no | no | predict eye gaze on areas of interest on data visualization |
| Yu and Silva (2020) [YS20] | yes | yes | | | no | no | A Natural Language Interface for Visual Data Exploration |
| Mannino and Abouzied (2019) [MA19] | yes | yes | | | no | maybe | generates synthetic data. "It provides instant feedback on every user interaction by updating multiple visualizations of the generated dataset and even suggests data generation specifications from a few user examples and interactions" |
| Kodagoda et al. (2013) [KAW*13] | yes | yes | | | no | no | Classifyied use interactions using ML, but is done posthoc. They used SVM, RF, and HMM. |
| Madanagopal et al. (2019) [MRB19] | no | no | | | no | no | conduced an interview study with data analysts from domains such as intelligence analysis, cyber-security, and geospatial intelligence. Showed that domains have different provenance needs |
| Kondo and Collins (2014) [KC14] | no | no | | | no | no | show timeline hints when the user touches a datapoint. This can help the use understand how a datapoint changes when there is time varying data |
| Culter et al. (Trrack) | no | no | | | no | no | Trrack library capture provenance date |
| Monadjemi et al. 2020 | yes | yes | | | yes | | Competing Models |
| Gadhave et al. 2020 | yes | yes | | | yes | | used k-means to predict intent for scatterplot brushing |