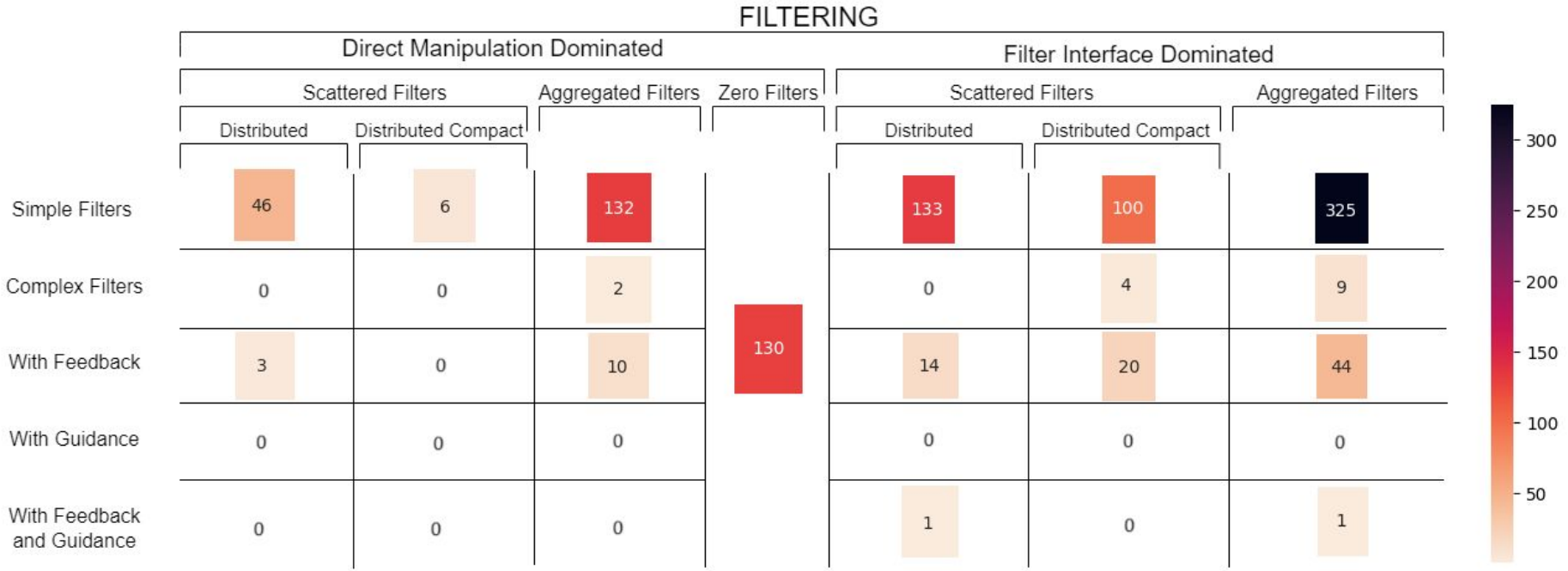


Fig. 1 High-Level Overview of the proposed taxonomy

Fig. 2(a) System interface of MV2Net[72]: many simple filters such as sliders, drop-down menus and labels are distributed within the various views of the system

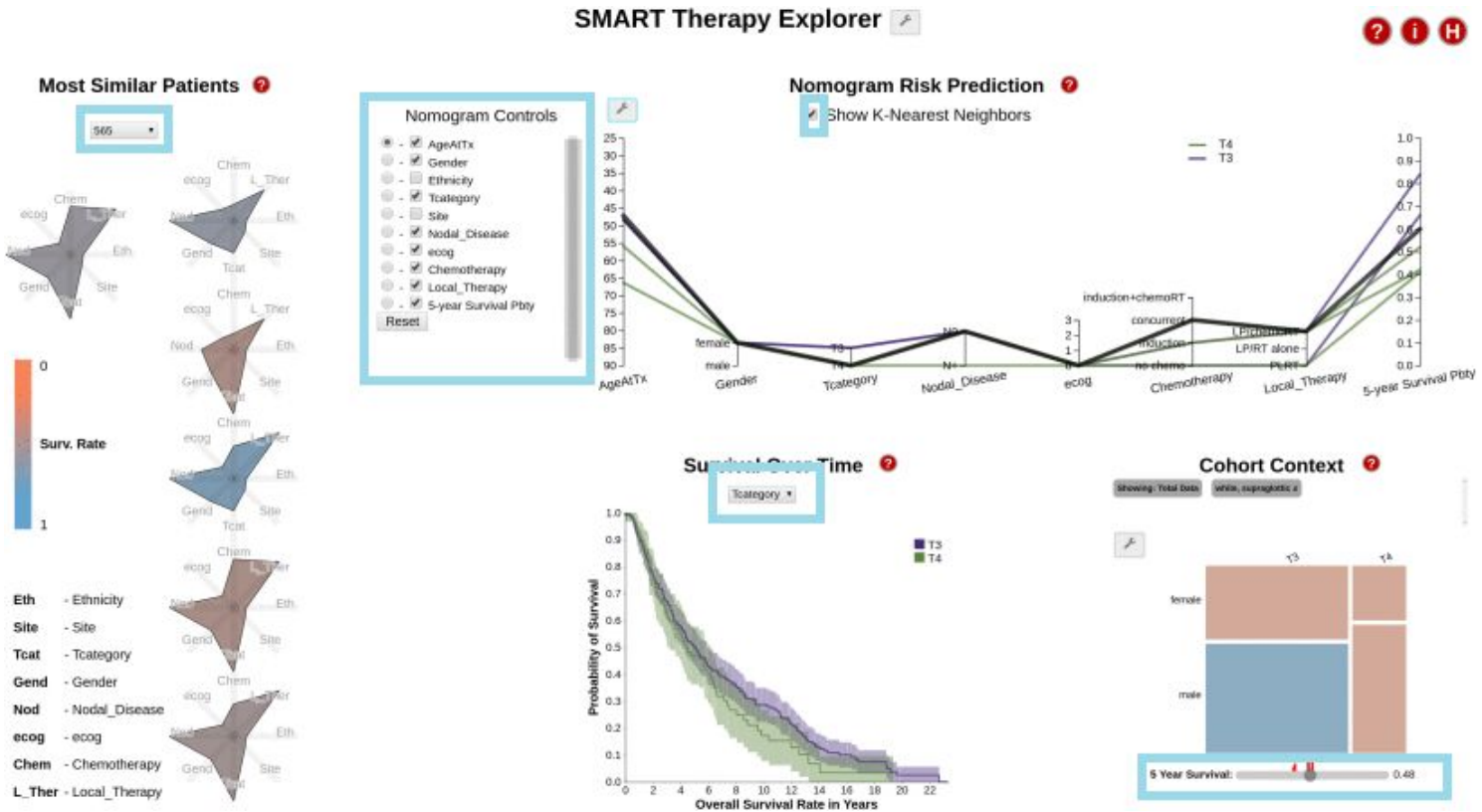


Fig. 2(b) System interface proposed by Marai et al.[59]: many simple filters are distributed within the various views of the system and also in the "Cohort Context" view you can see the scented widget

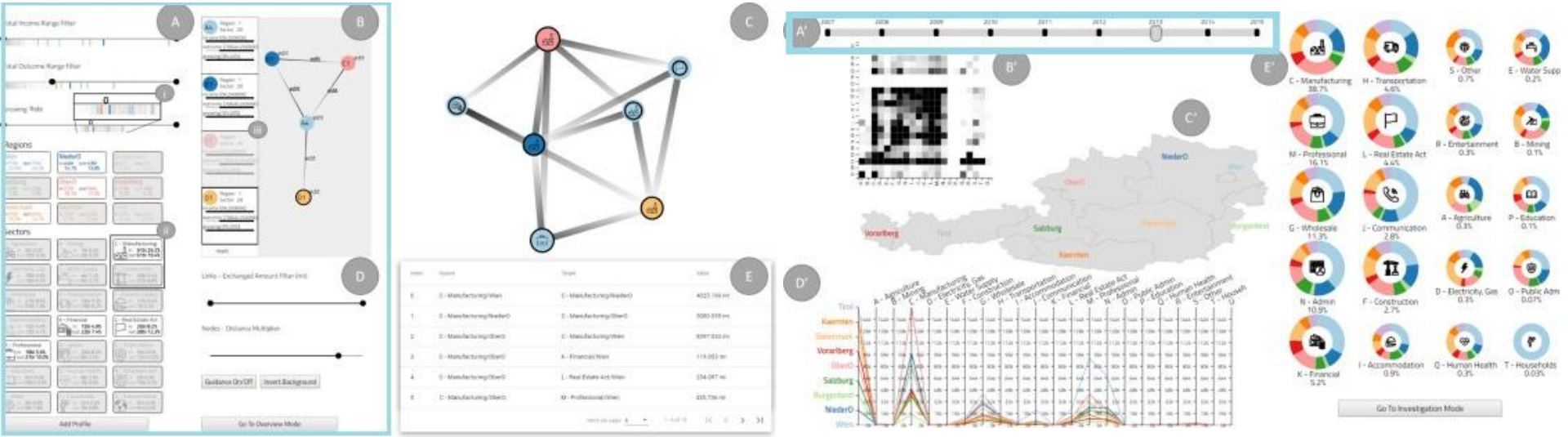


Fig. 2(c-d) Hermes system interfaces[5]: section A and B show the implemented filter with feedback and guidance

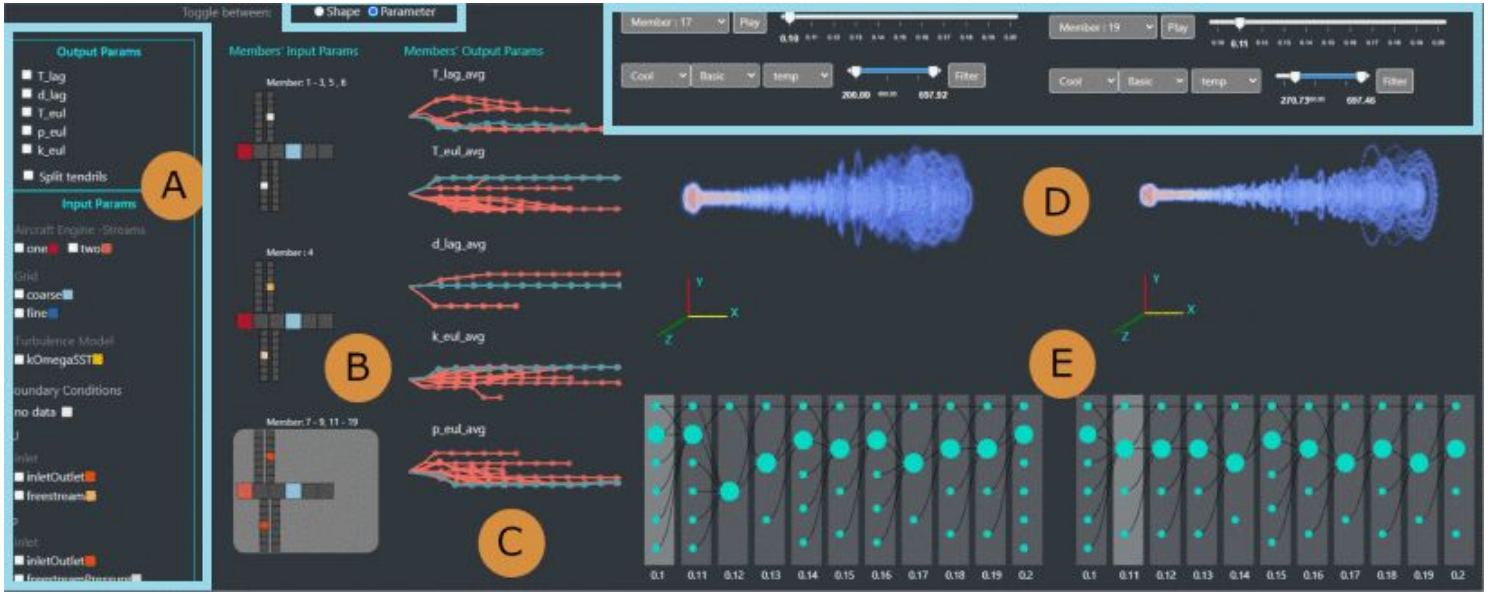


Fig. 2(e) System interface proposed by Nipu et al.[65]: it can be seen that both in section A and in section D there are simple filters

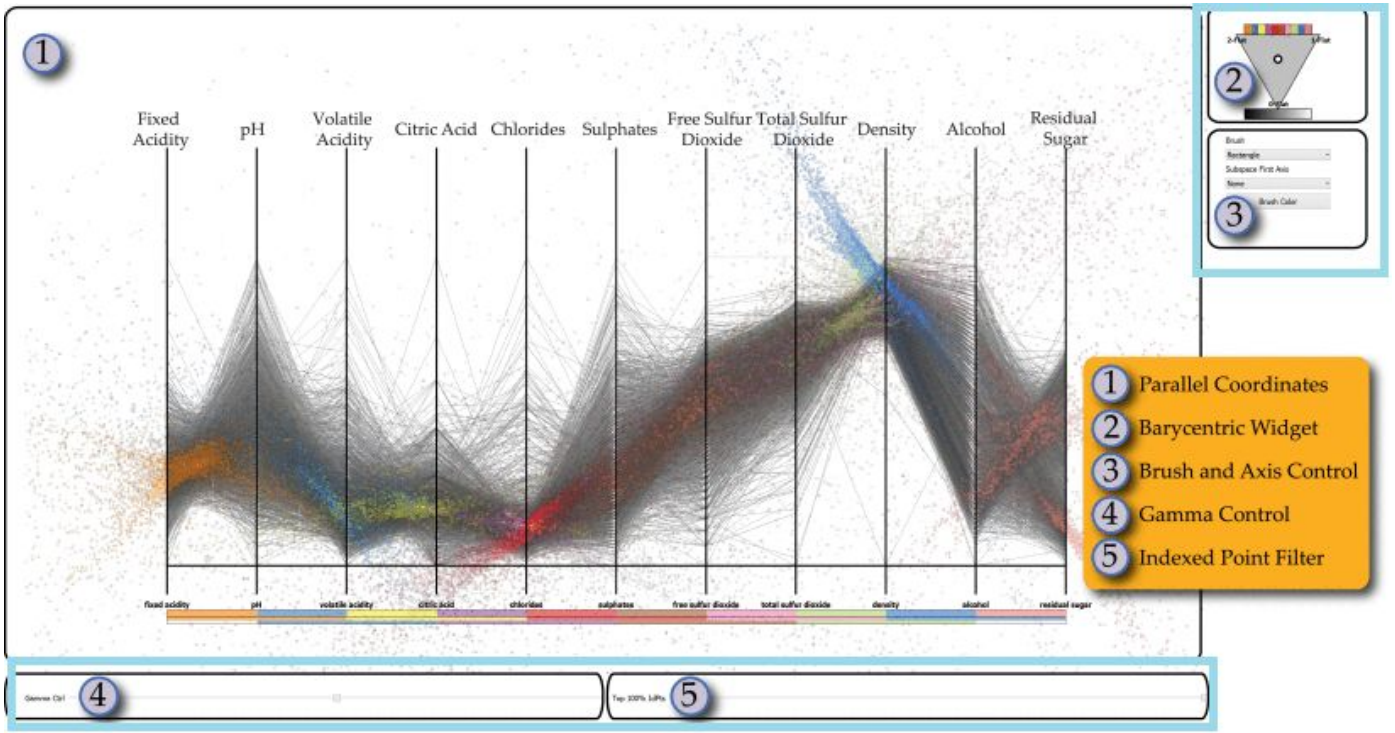


Fig. 2(f) System interface proposed by Zhou and Weiskopf [95]: it can be seen that sections 2-5 are all filters but in particular section 2 presents a complex filter.

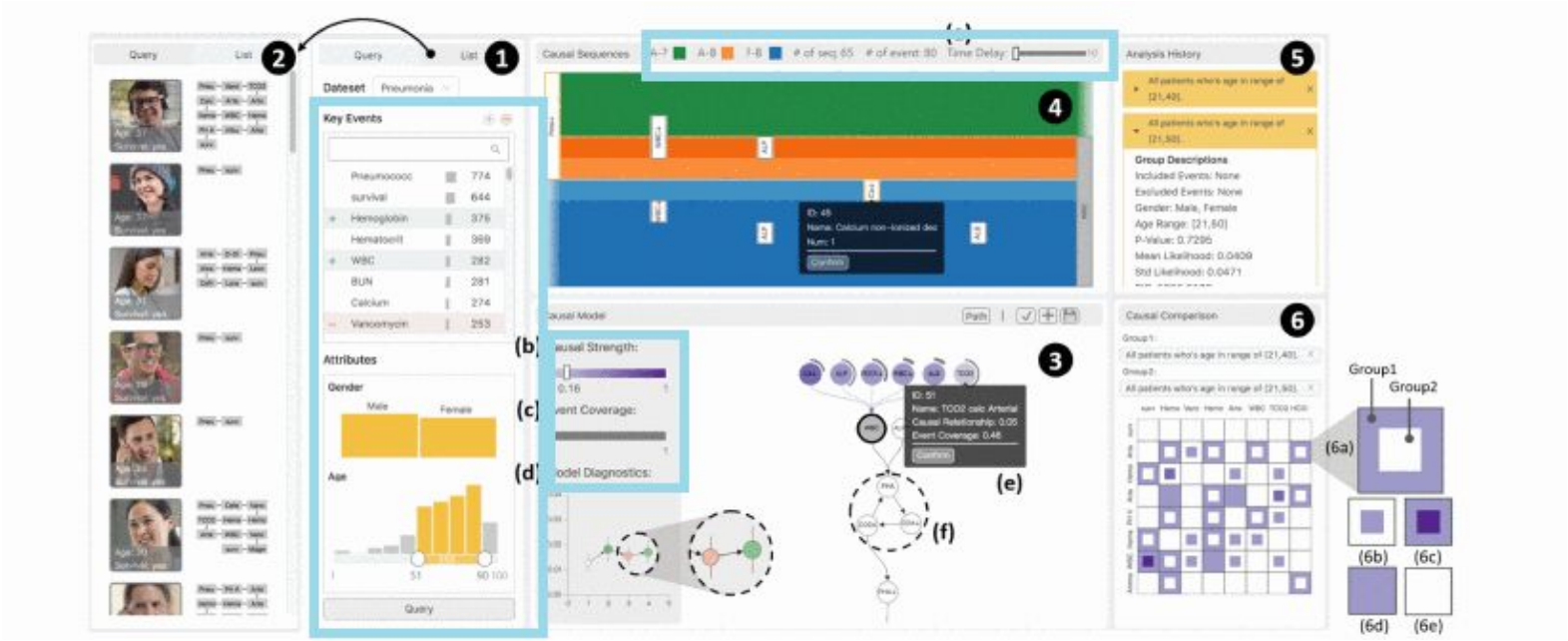


Fig. 3(a) System interface of SeqCausal [38]: in section 1 you can find all the filters with feedback present in the system

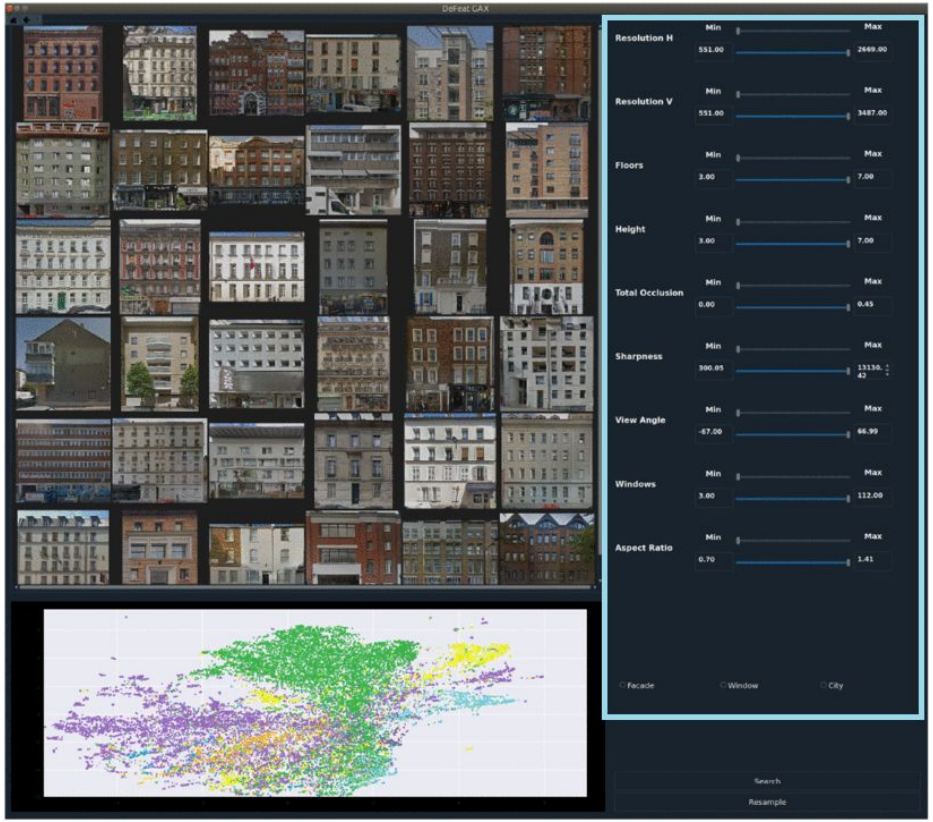


Fig. 3(b) System interface proposed by Zhu et al.[96]: on the right side you can see an area dedicated to filters (all of a simple type)

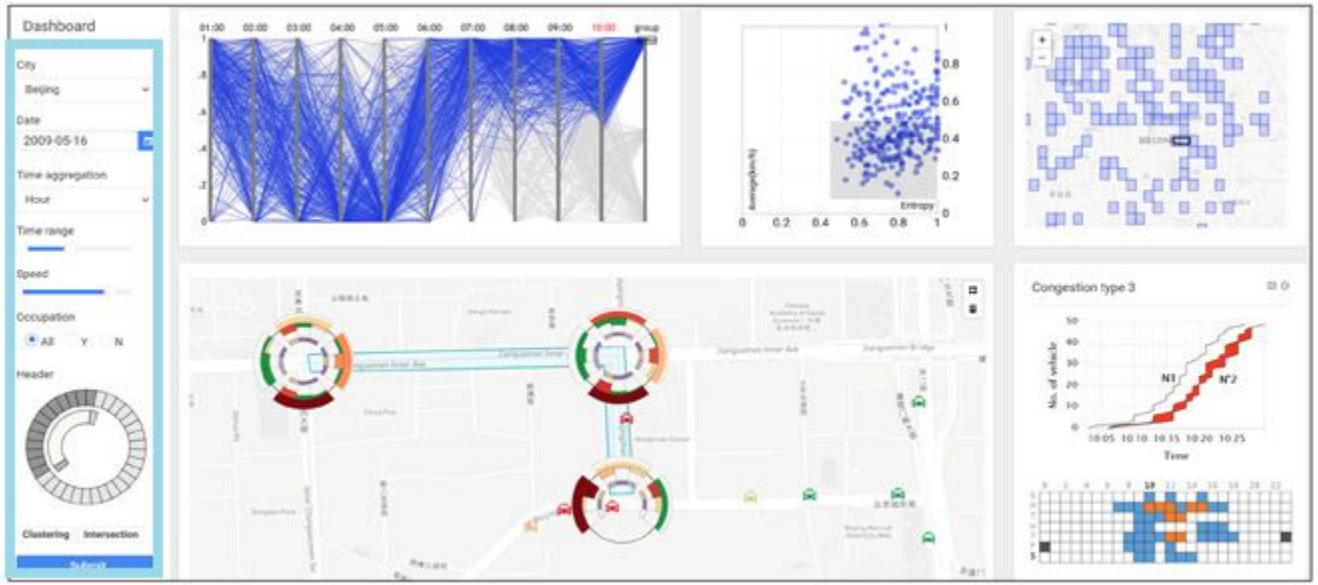


Fig. 3(c) System interface proposed by Pi et al.[68]: in the dashboard you can see the complex filter called header at the bottom

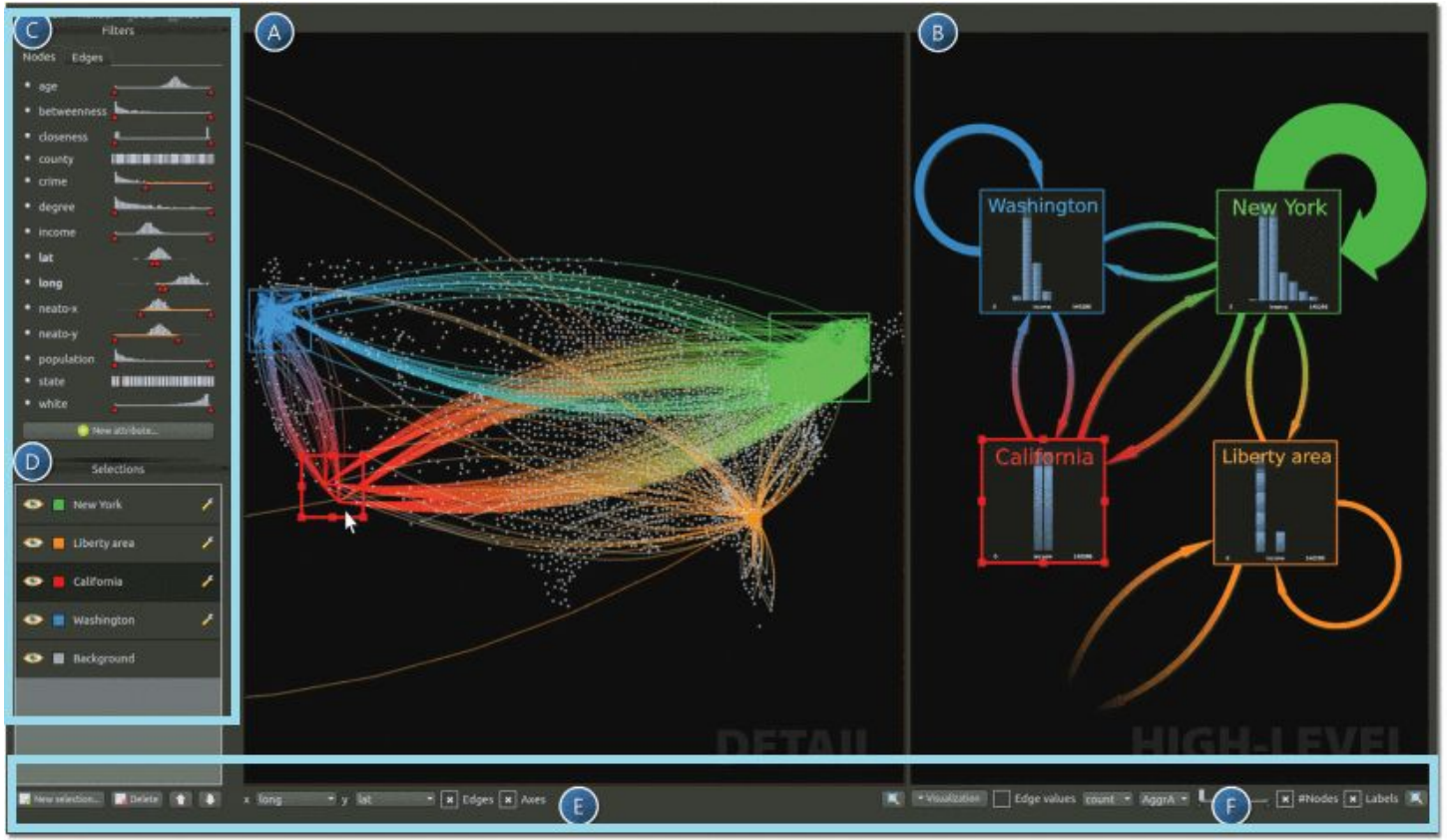


Fig. 3(d) System interface proposed by van den Elzen and van Wijk [78]: in section C you can see the implemented scented widgets

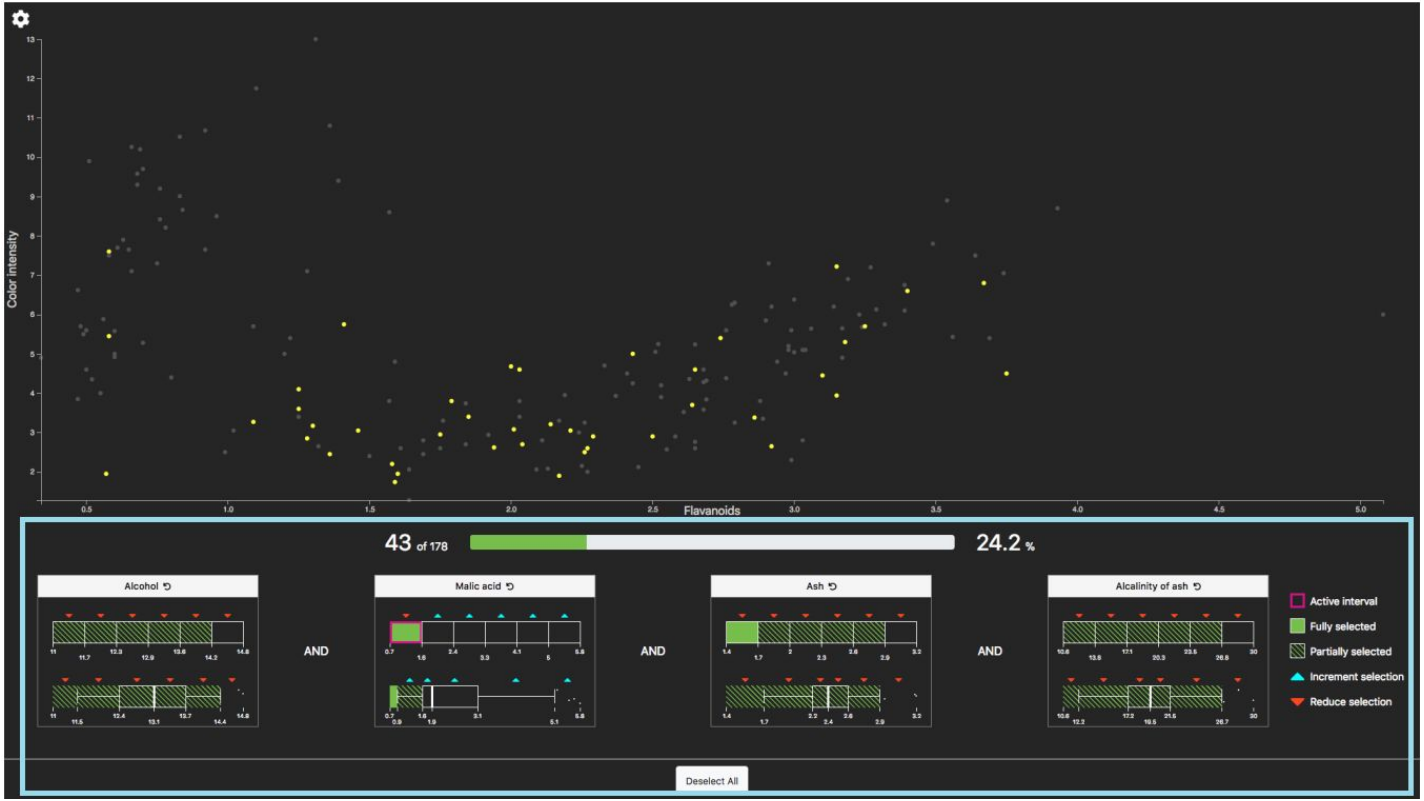


Fig. 3(e) System interface implemented by Angelini et al.[4]: in the lower part you can see the filters with feedback and guidance

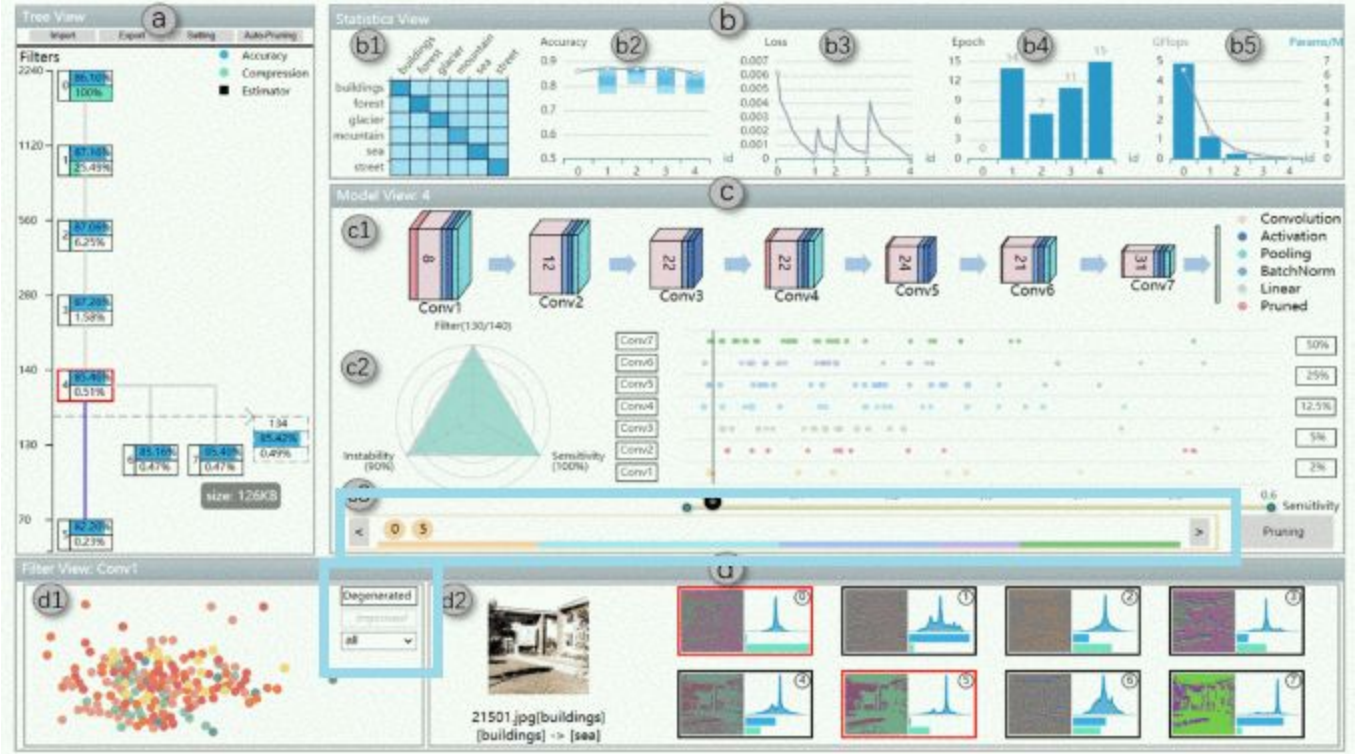


Fig. 3(f) CNNPruner system interface [49] where the user can drag in the bubble plot, can click some nodes of the tree, the cells of the matrix, a layer for convolutional layers or some points in the scatter plot

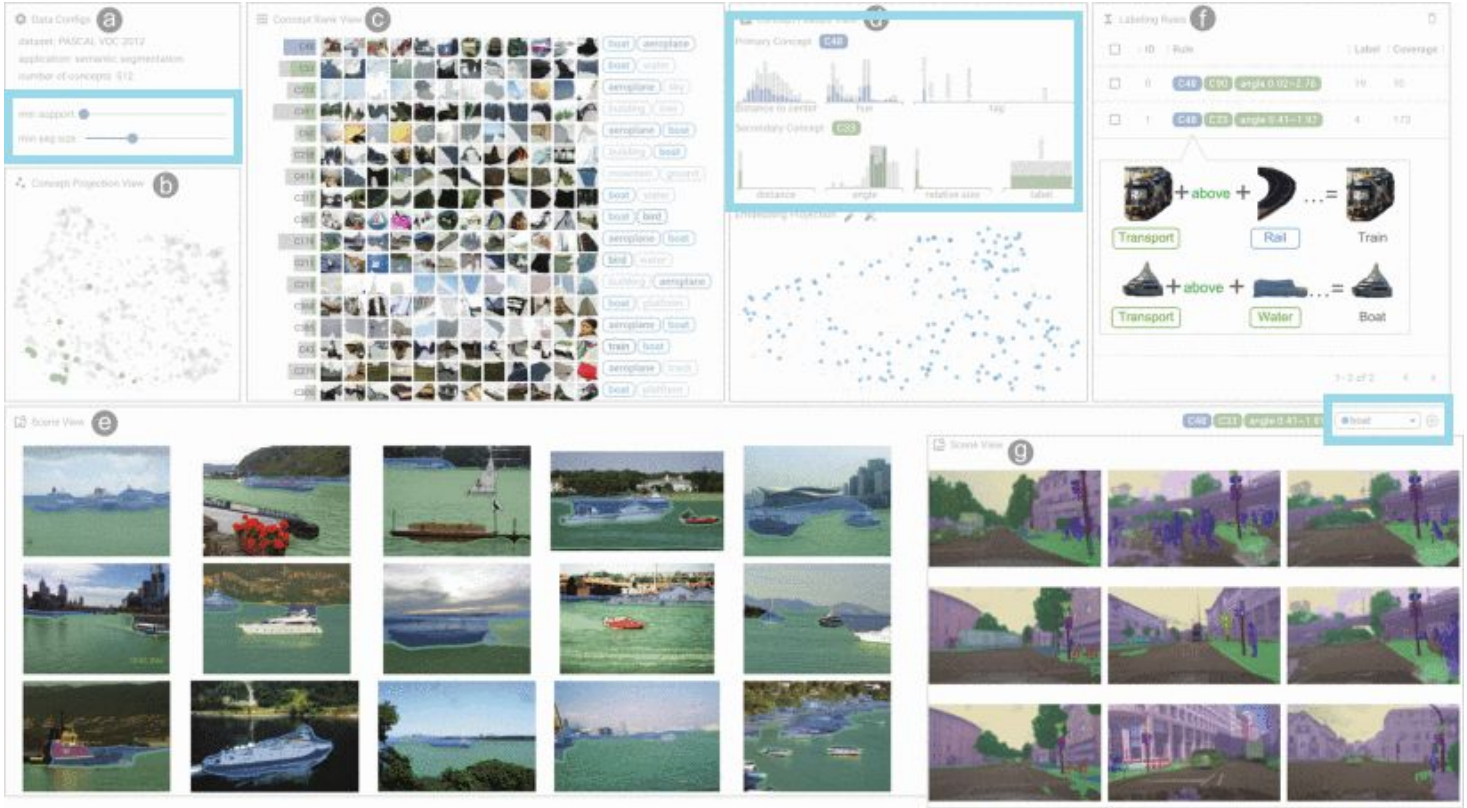


Fig. 4(a) System interface proposed by Hoque et al.[35]: section d shows implemented filters with feedback

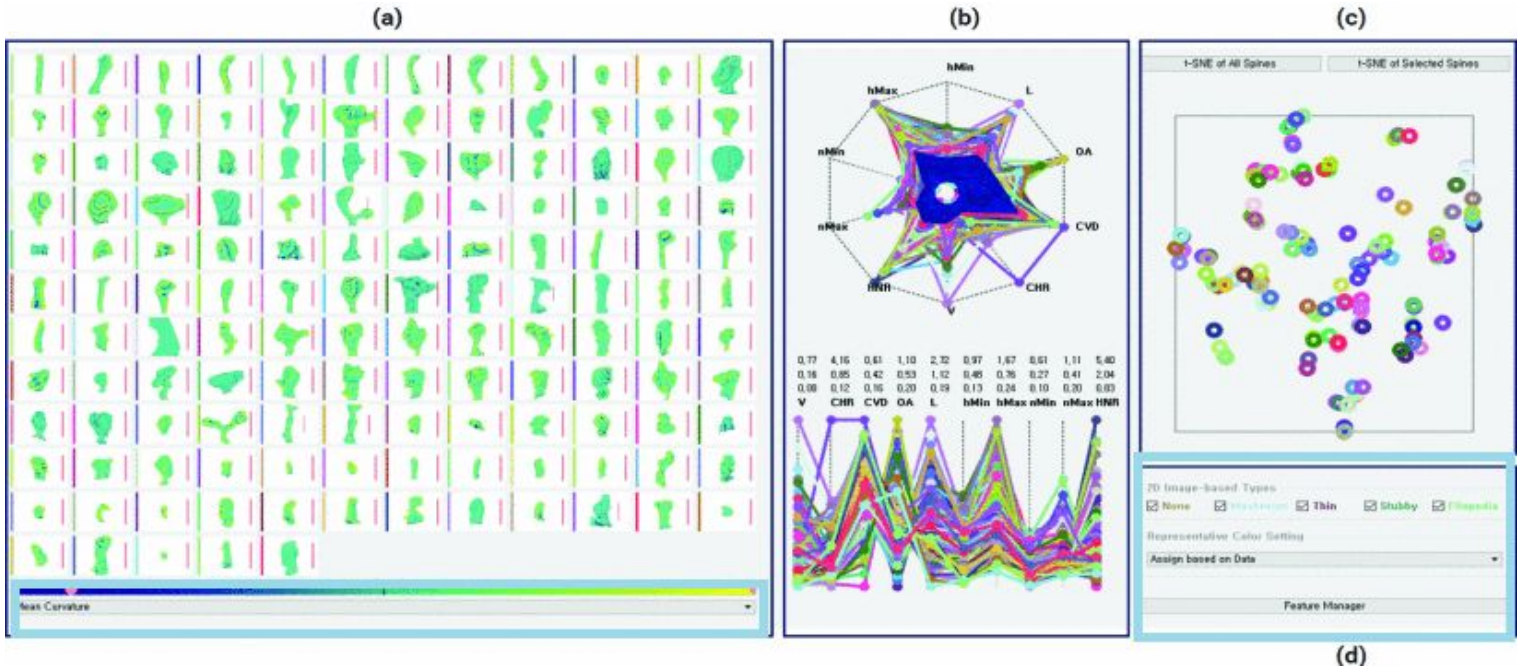


Fig. 4(b) System interface proposed by Choi et al.[21] where the user can click the color bar, a line in the plots, a spine in the grid, can brush more spines on the each axis of plots, furthermore he can select a specific region containing certain spines by dragging the mouse(sect. c) and can rotate the spine by dragging the mouse left(sect. a)

Fig. 4(c) System interface proposed by Guo et al.[33] where the filters are shown in section (b) and (d)

Fig. 4(d) System interface proposed by Chen et al.[19] shows in section C, Event Filter, a filter of complex type

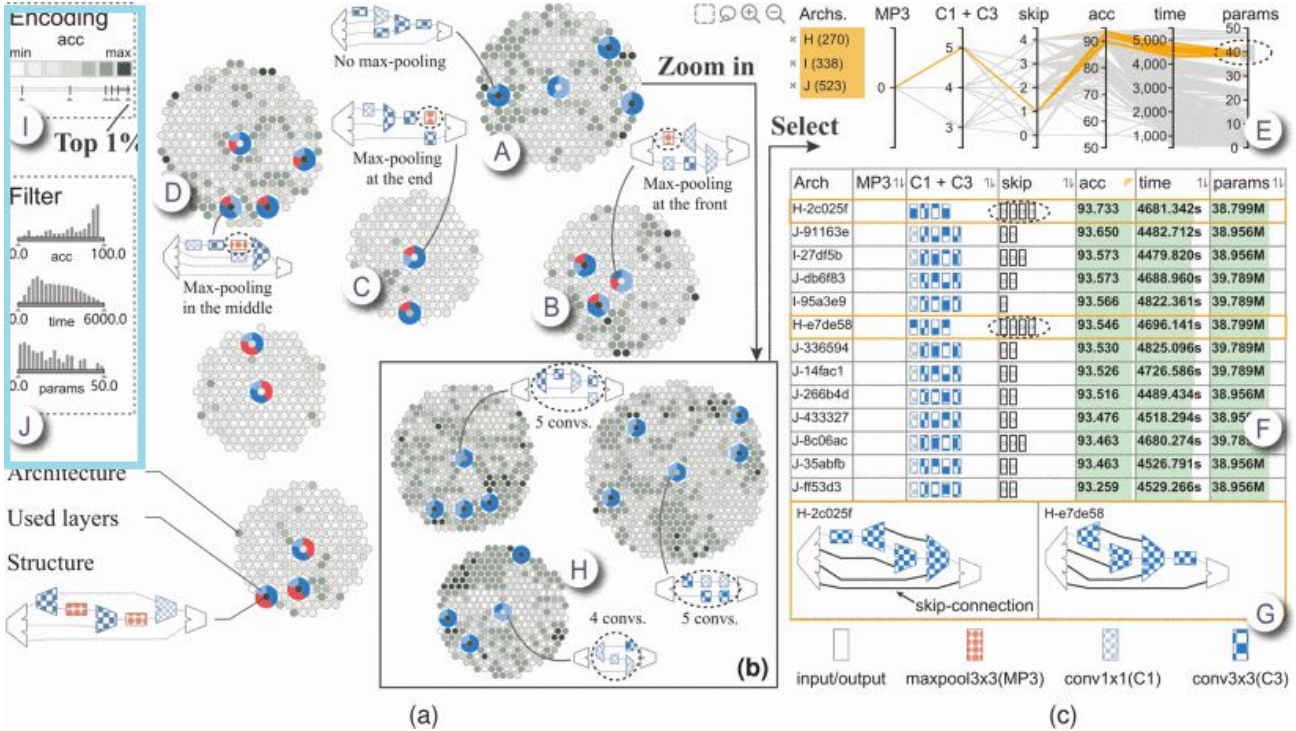


Fig. 4(e) ArchExplorer system interface [89] shows in section J, three scented widget that give feedback to the user

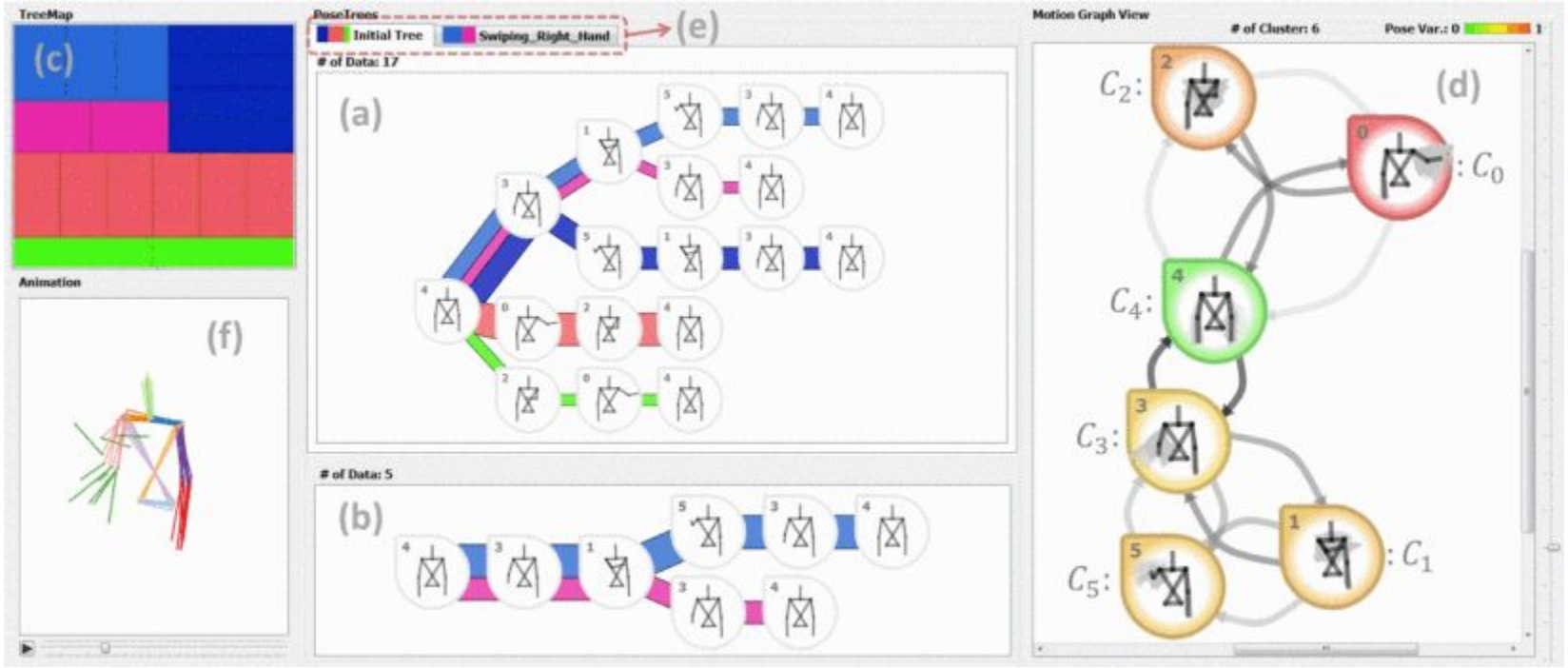


Fig. 4(f) Motionflow system interface [37] where it can be seen that the interface is free of filters

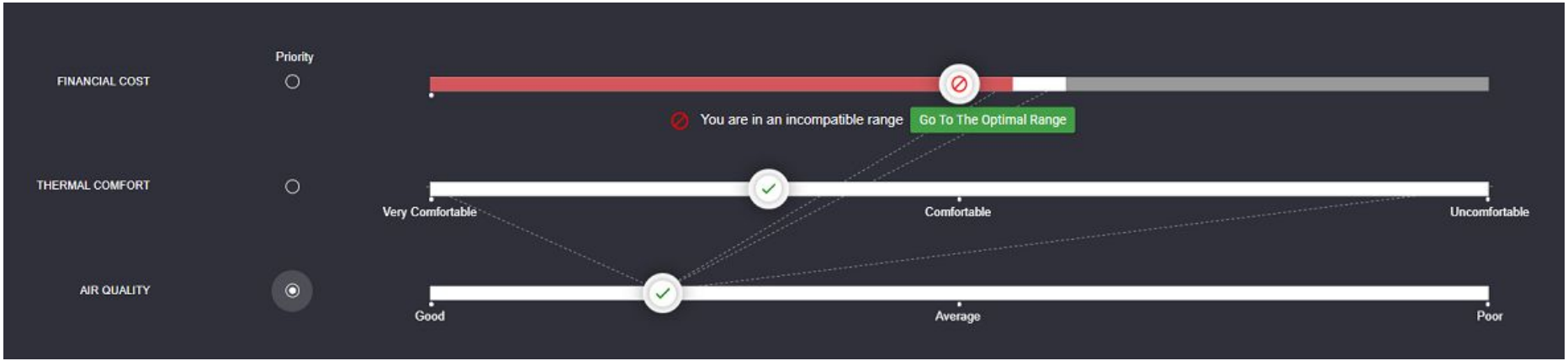


Fig. 5(a) TOP-Slider implementation [45]

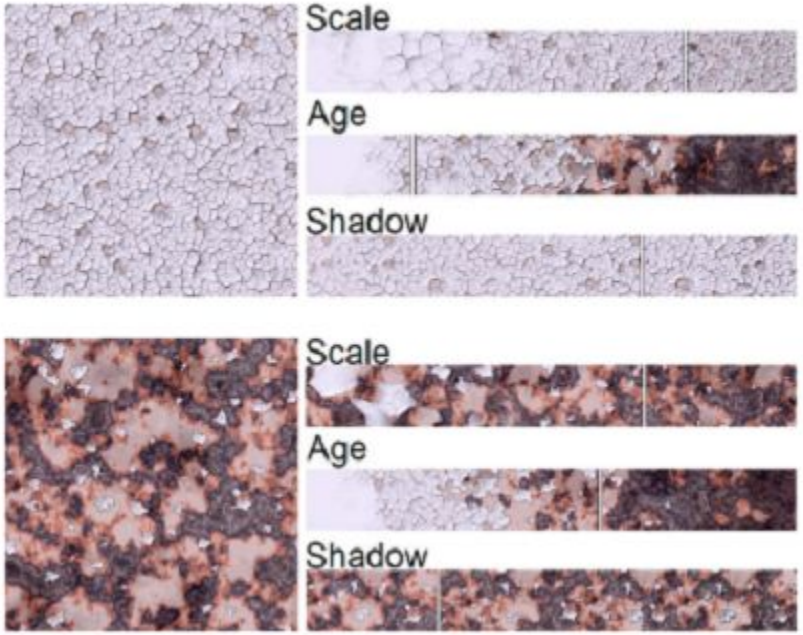


Fig. 5(b) Two possible texture configurations, proposed by Lasram et al.[44], by changing the slider parameters

Fig. 5(c) Exploring a dataset using AggreSet [85]

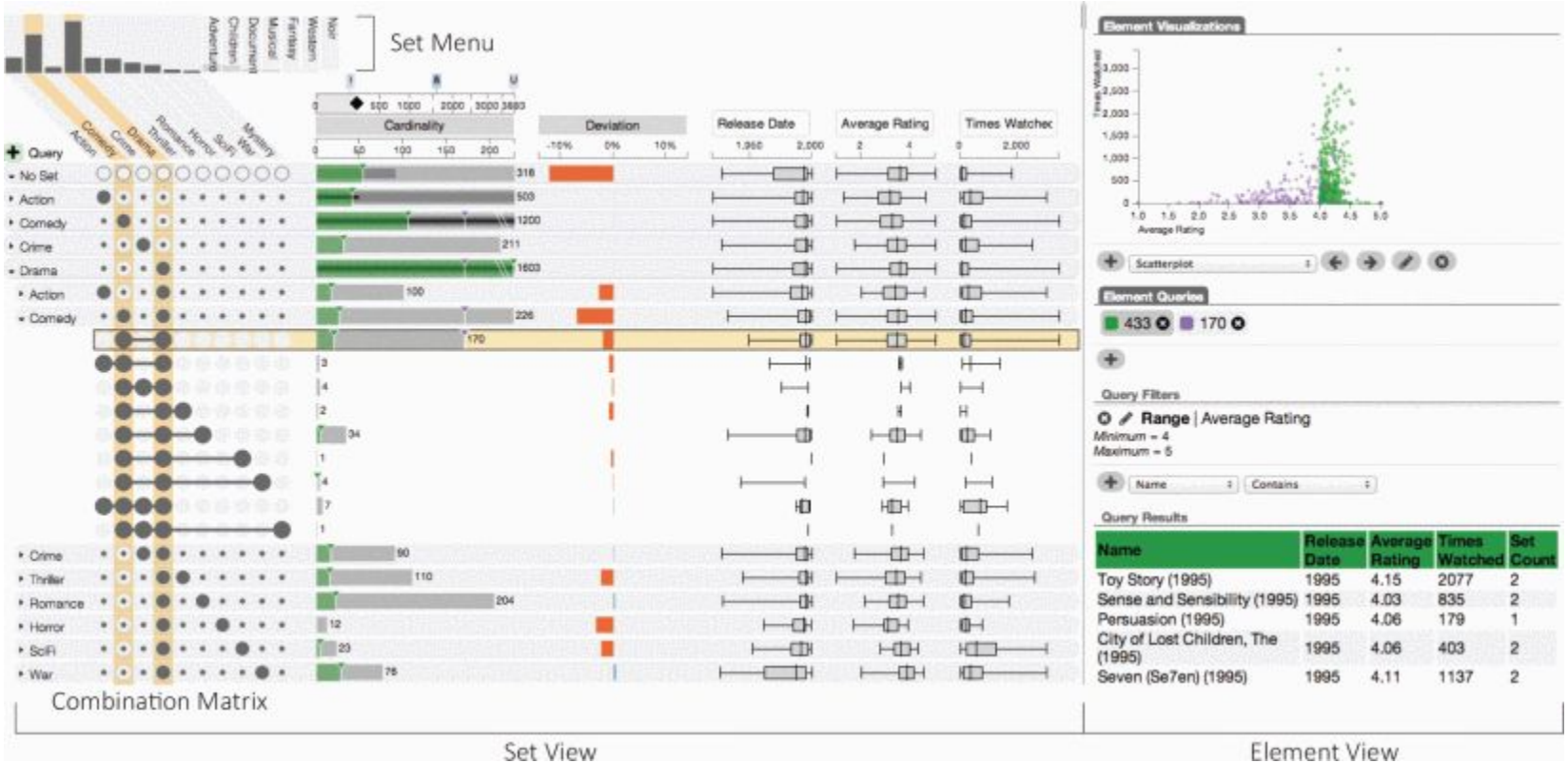


Fig. 5(d) UpSet interface [47]

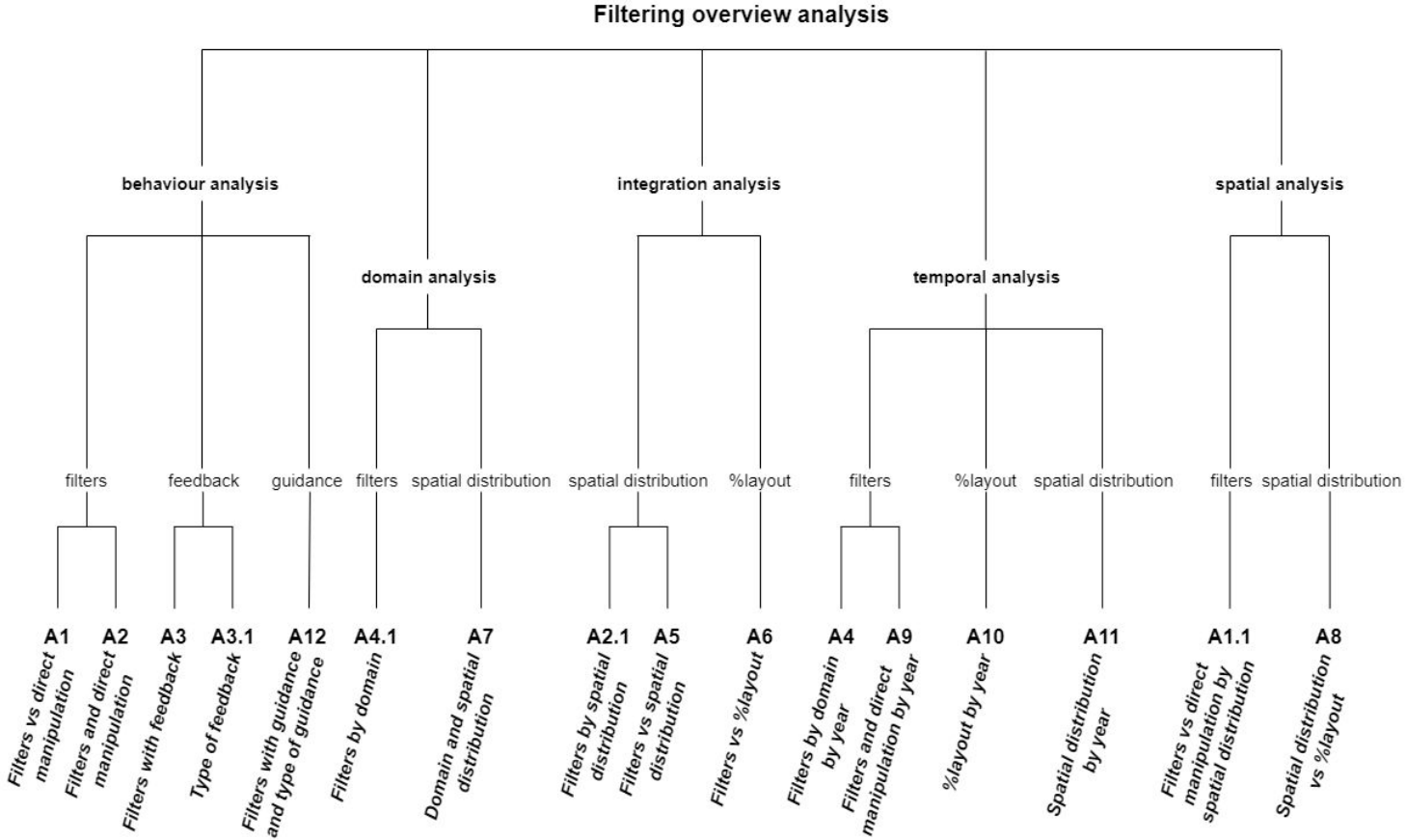


Fig. 6 Overview of the analyzes designed

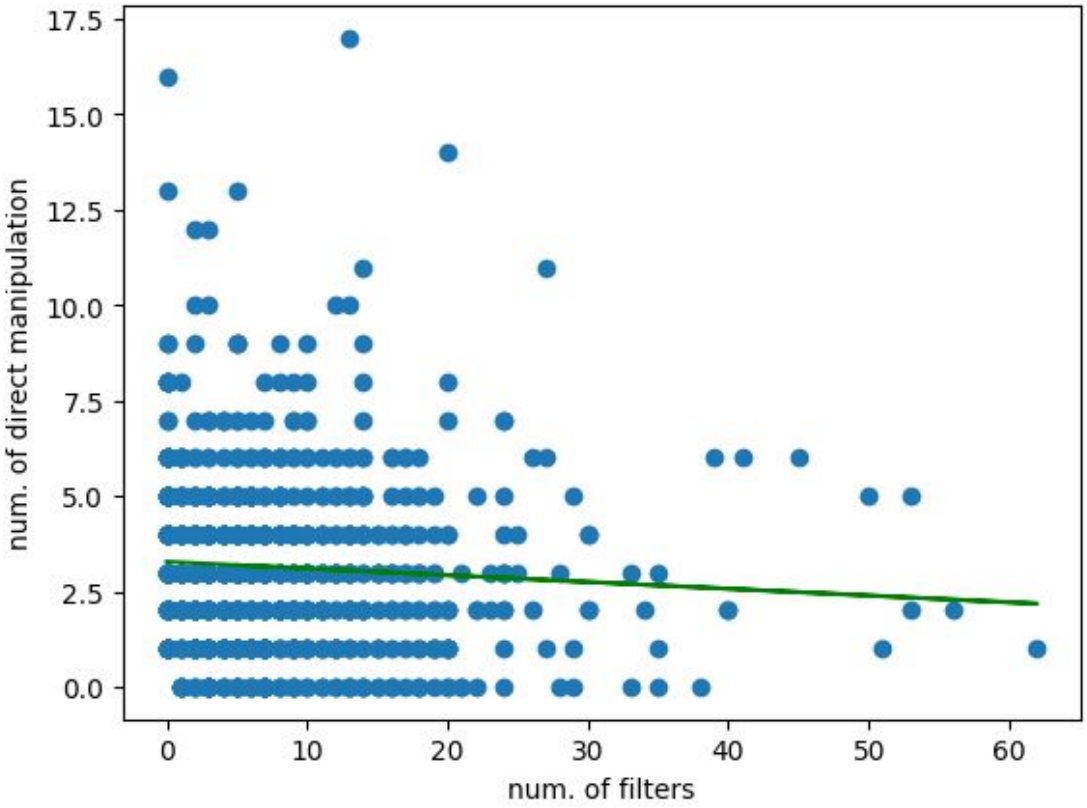


Fig. 7 Relationship between filters and direct manipulation discussed in analysis A1

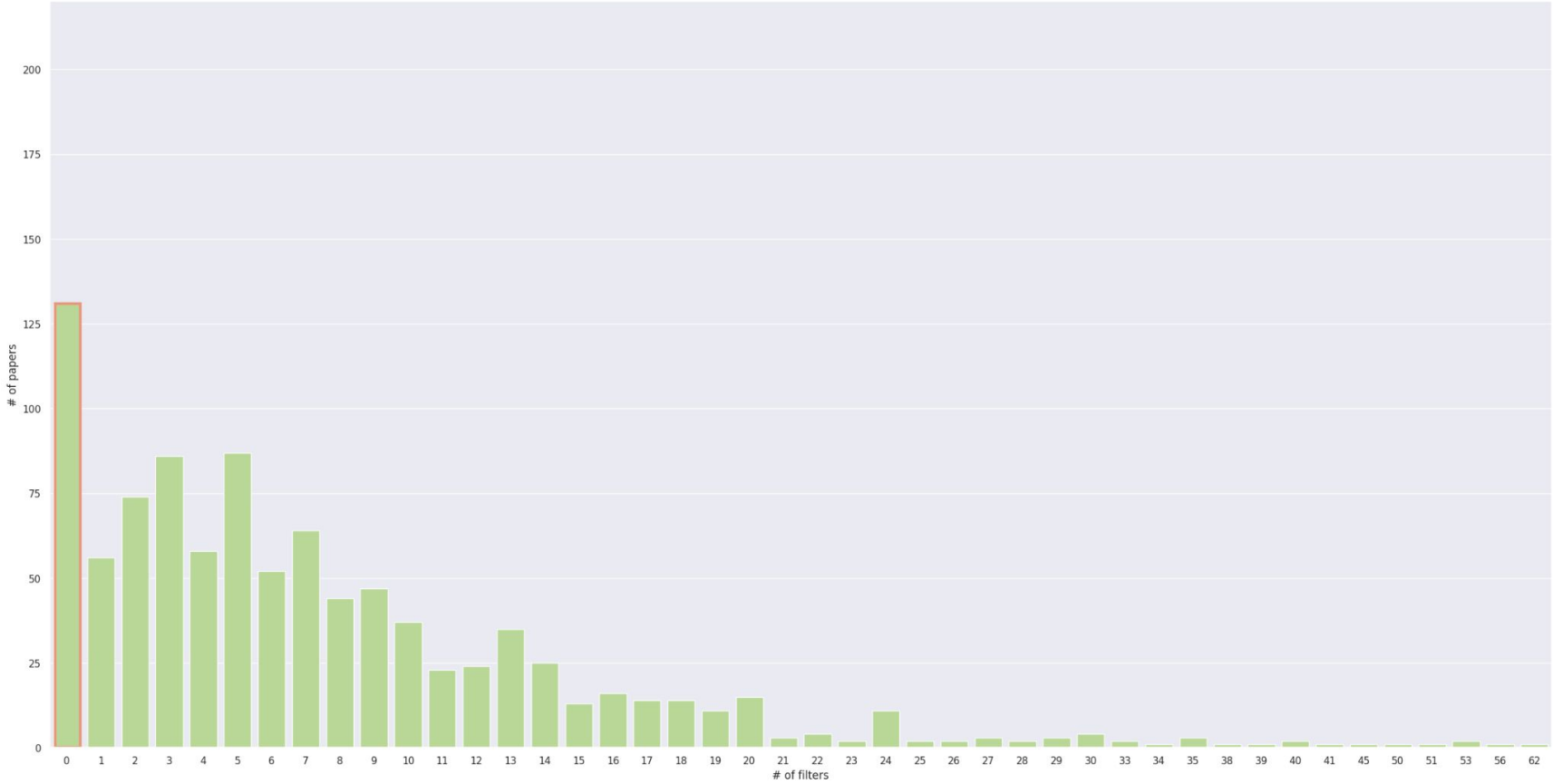


Fig. 8 (a) papers for each number of filters

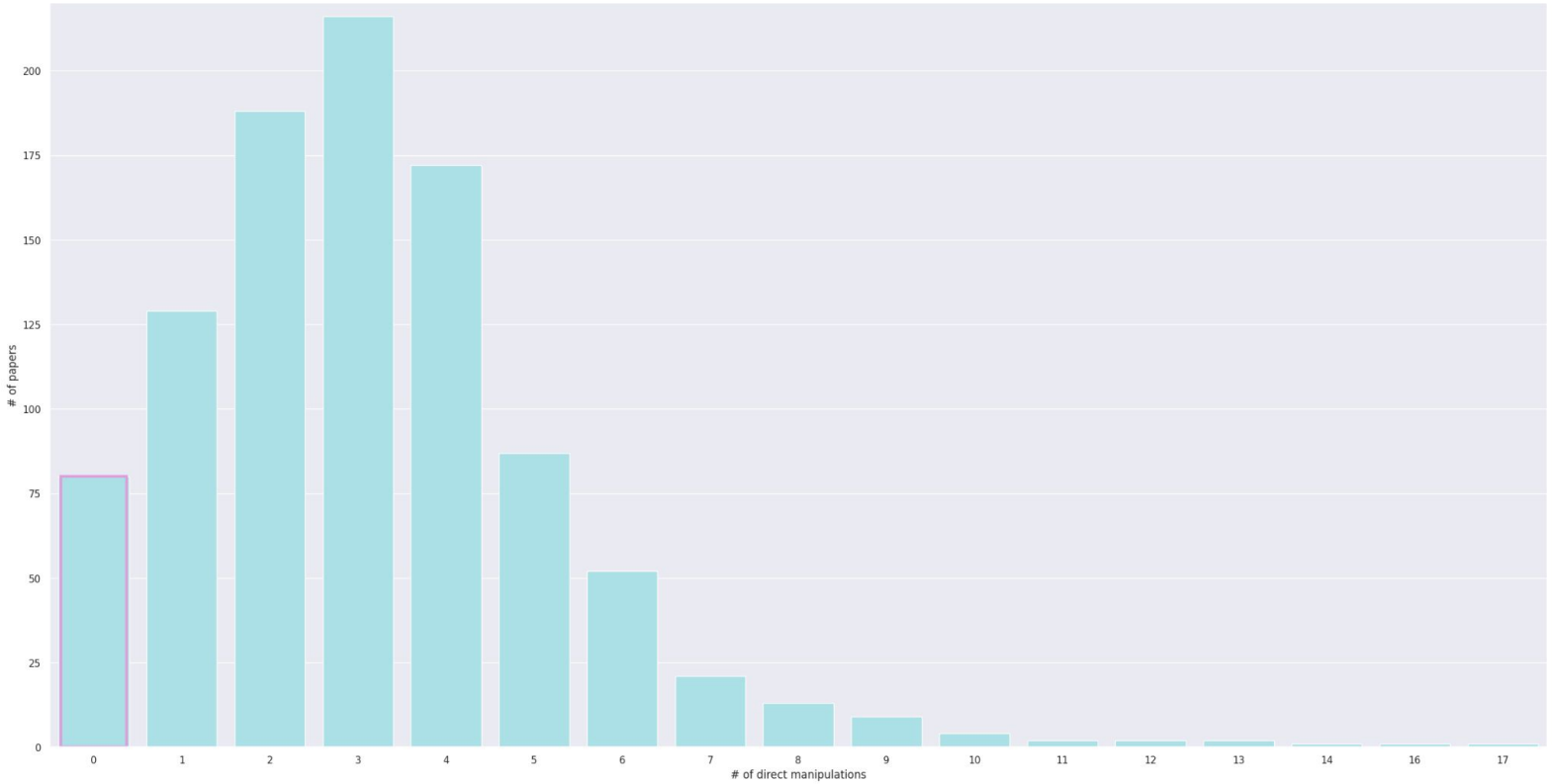
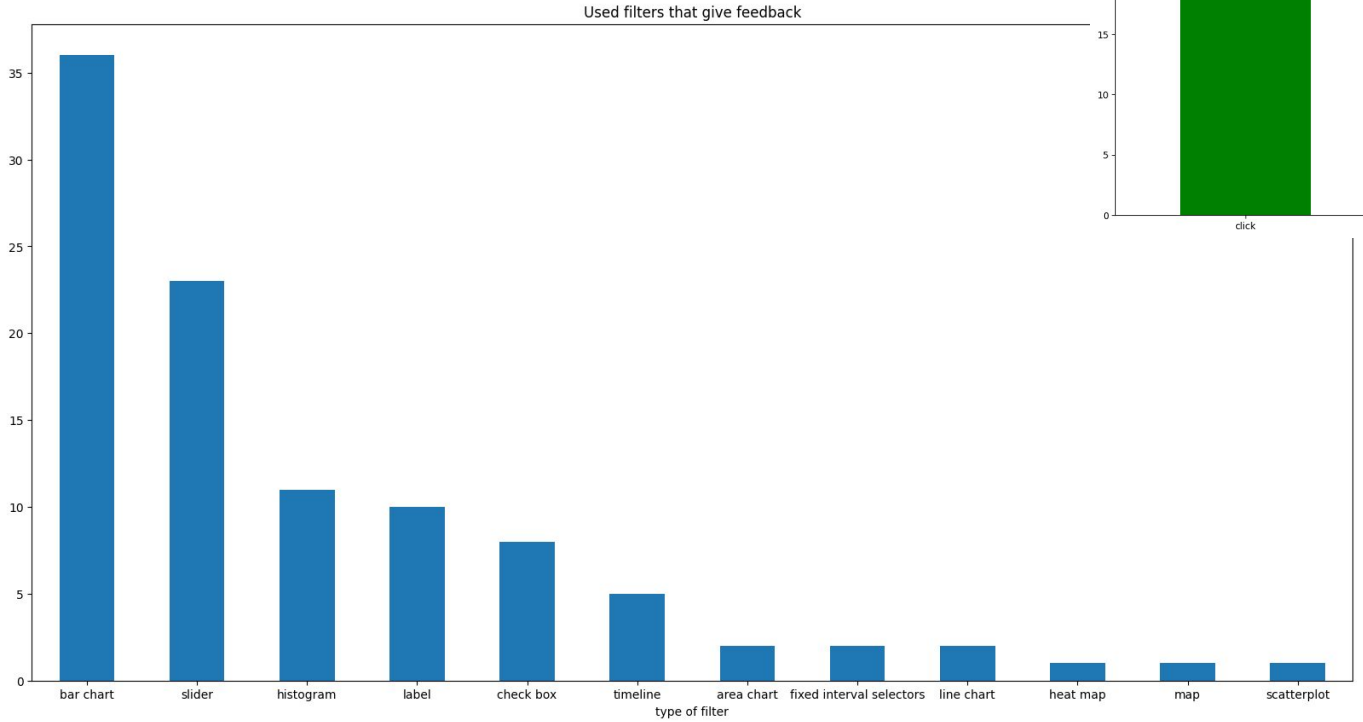
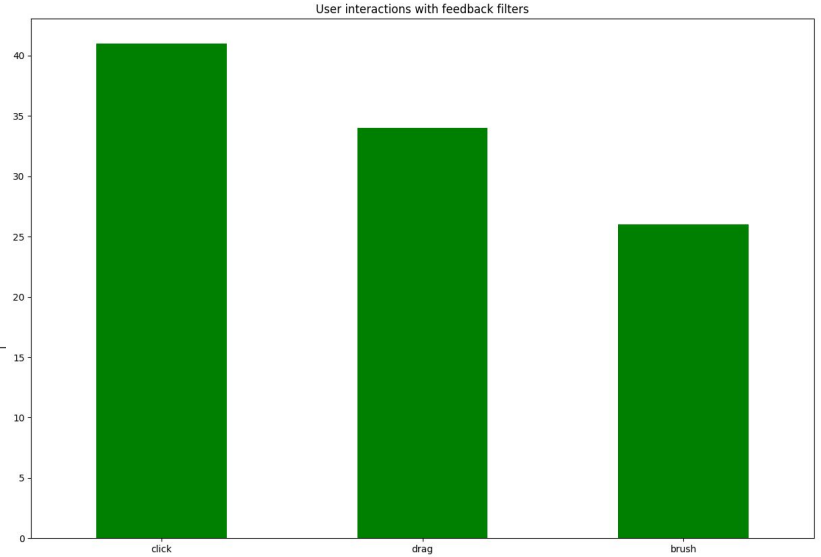


Fig. 8(b) papers for each number of direct manipulations

Fig. 9(a) Types of filters with feedback used,
(b) interactions used for filtering





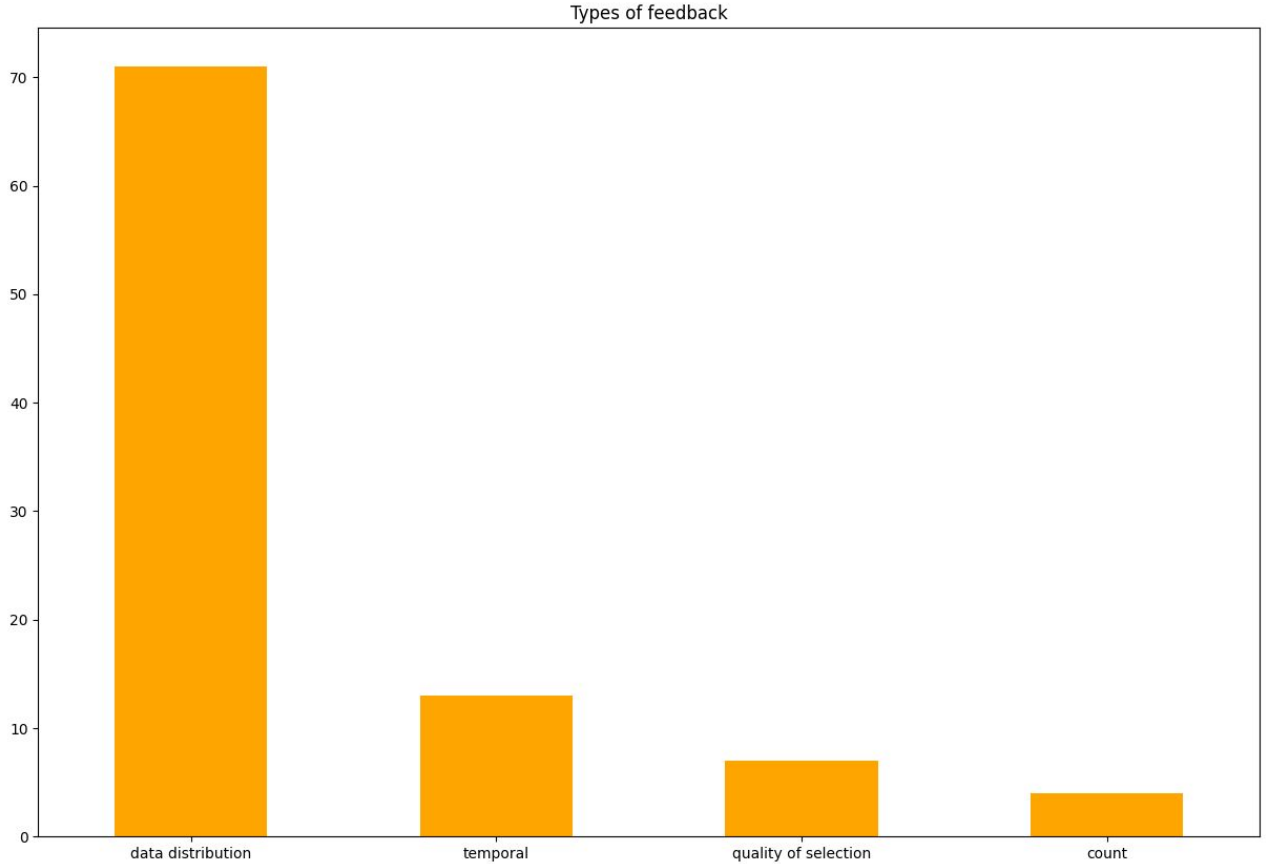


Fig. 9(c) types of feedback used in filters

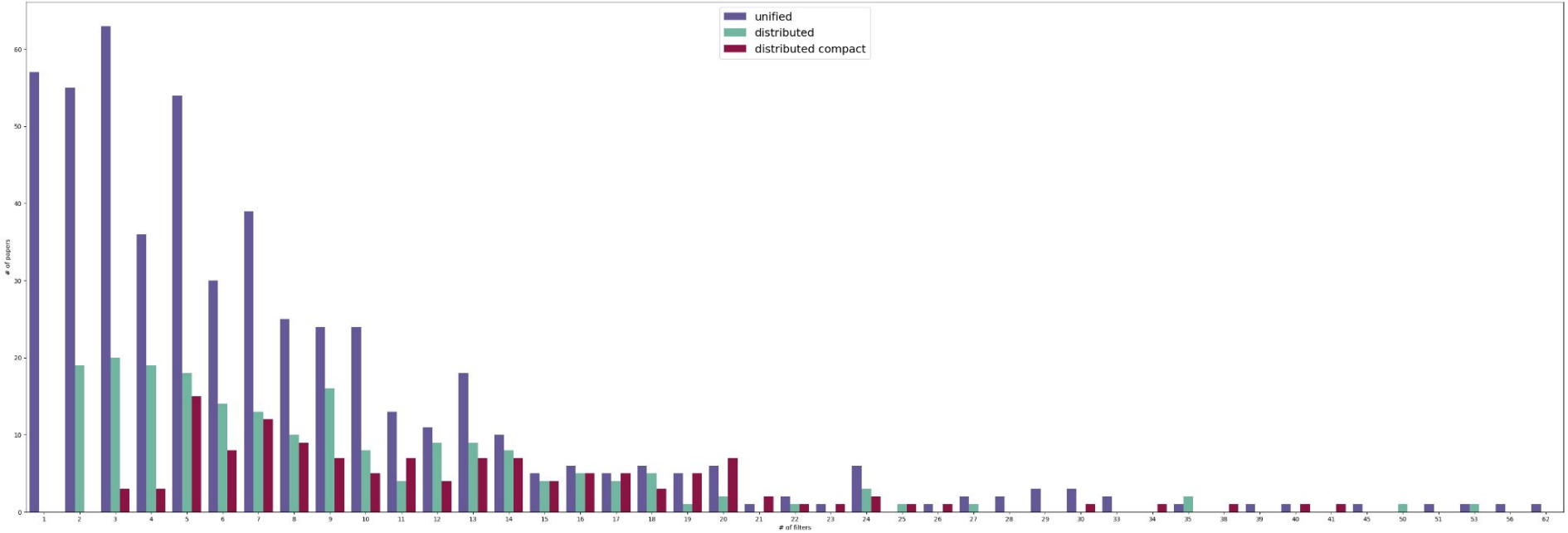
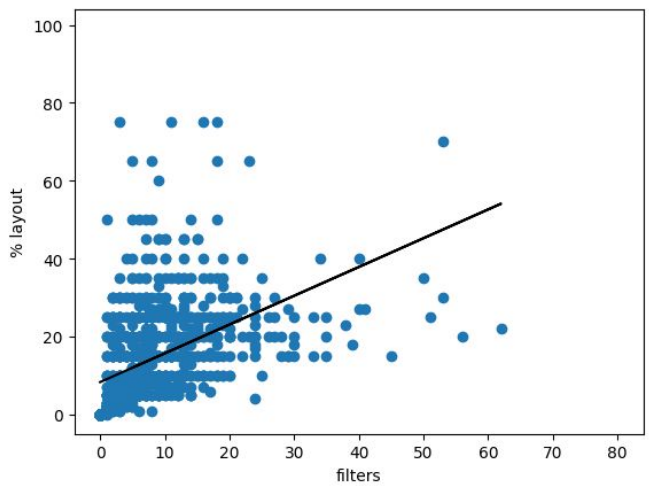


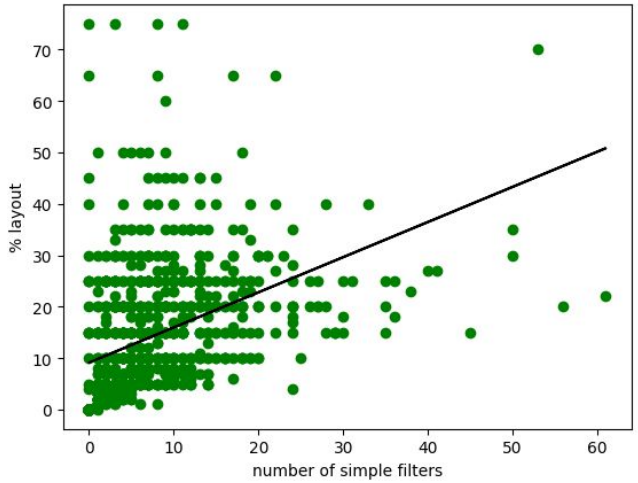
Fig. 10 Distribution of filters divided by spatial distribution

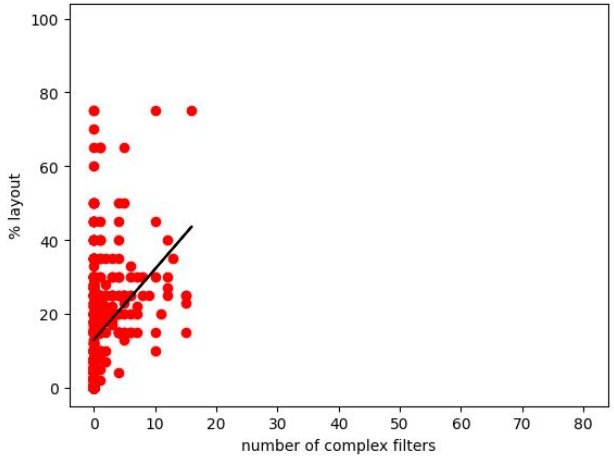
Filters	unified	distributed	distributed compact
few (>=0 & <2)	57	0	0
average (>=2 & <=10)	350	137	62
many (>10 & <=29)	88	52	57

Fig. 11(a) Filter distribution table for each spatial distribution, (b) filter distribution table with boxplot divided equally.

divided equally	unified	distributed	distributed compact
I (>=2 & <=4)	154	58	6
II (>4 & <=7)	123	45	35
III (>7 & <=10)	73	34	21







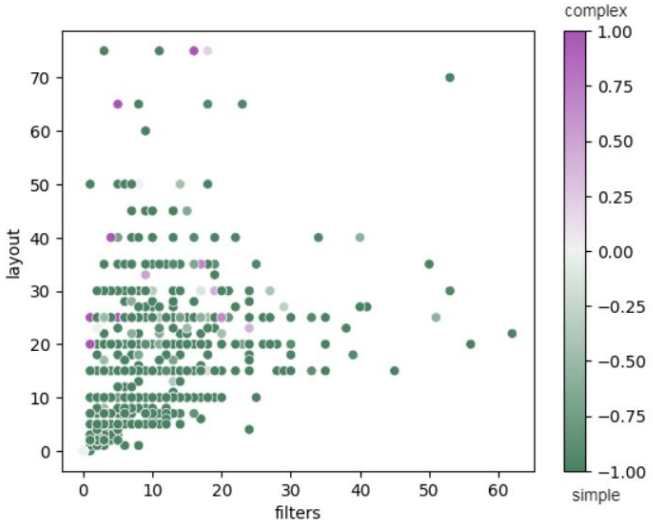
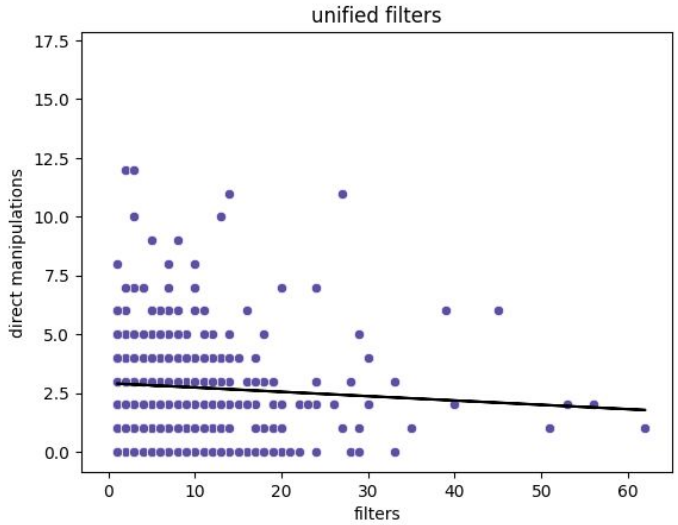
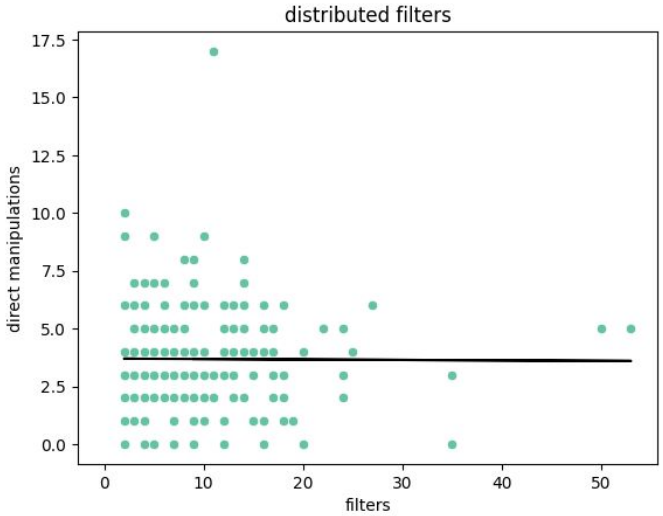


Fig. 12(a) Relationship between filters and \% of layout. Relationship between: (b) simple filters and \% of layout, (c) complex filters and \% of layout, (d) Color scale scatterplot.





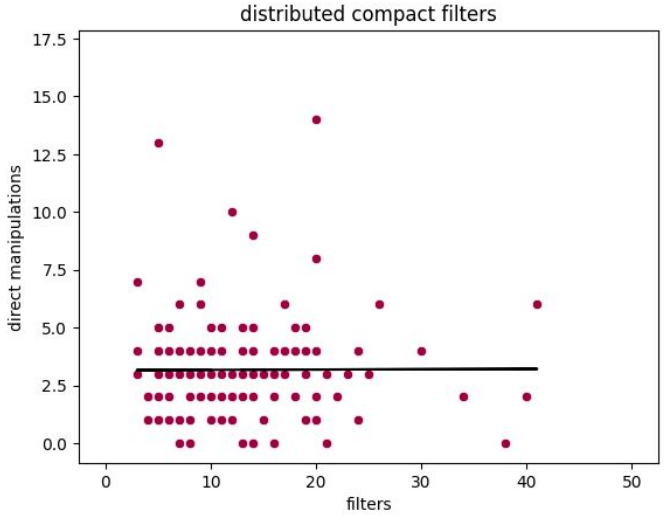
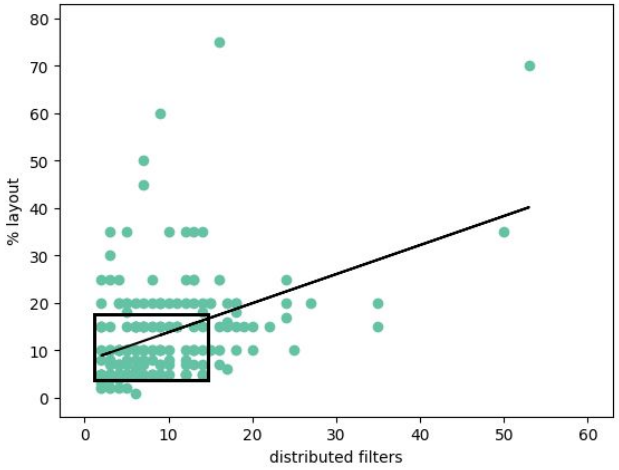
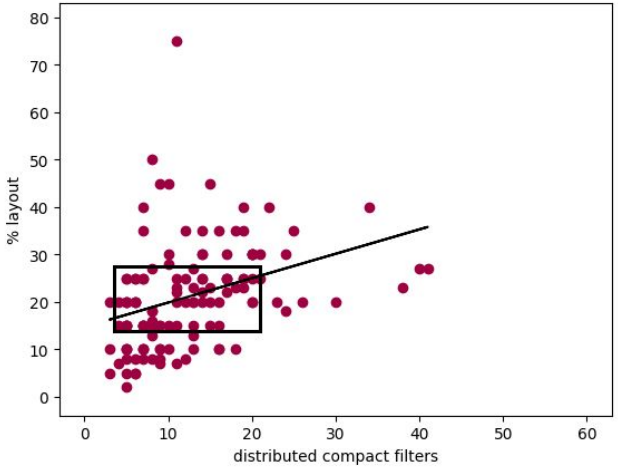
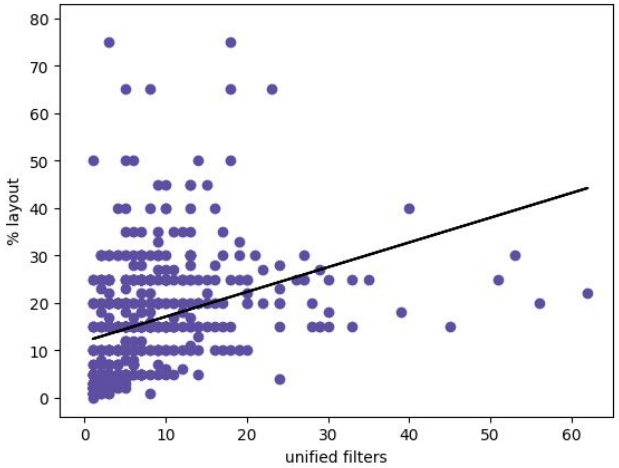


Fig. 13 Relationship between numbers of filters and direct manipulation: (a) unified filters, (b) distributed filters and (c) distributed compact filters







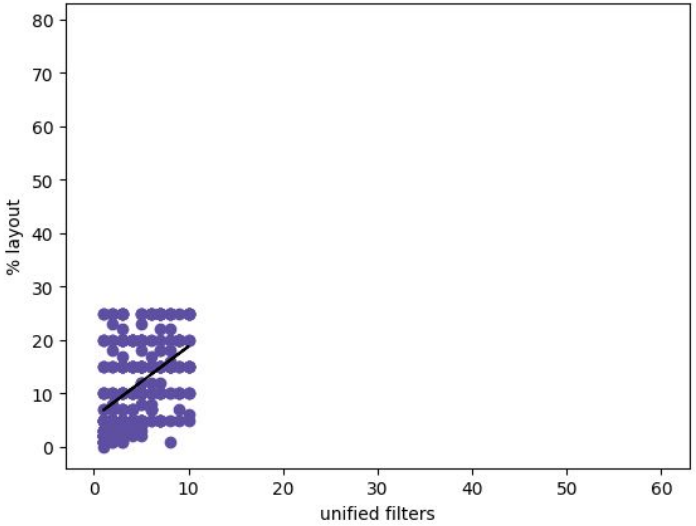


Fig. 14 Relationship between % of layout and: (a) distributed type of filters, (b) distributed compact type of filters and (c) unified type of filters, (d) centered unified filters

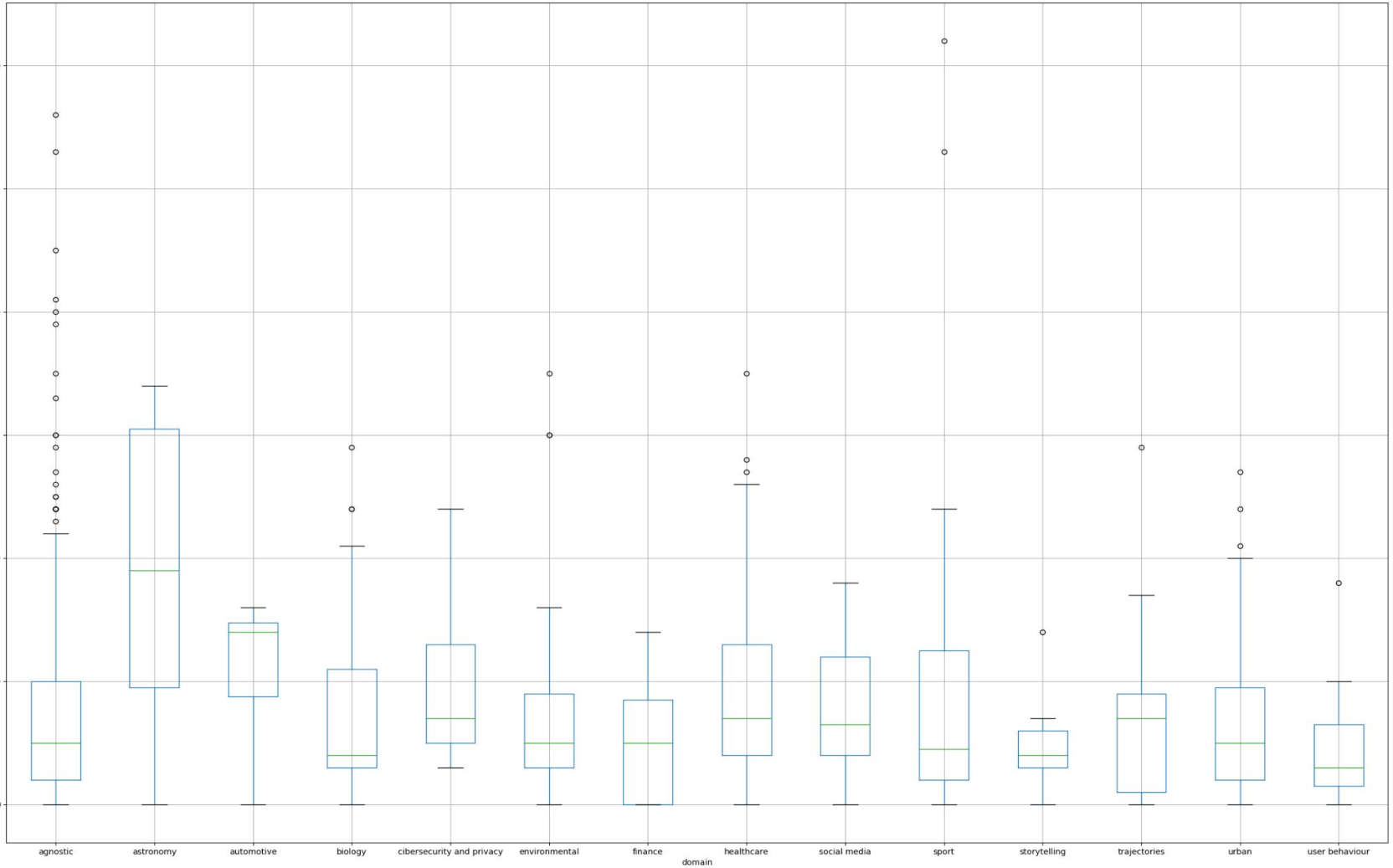


Fig. 15 Boxplots showing the distribution of filters (a) for each application domain

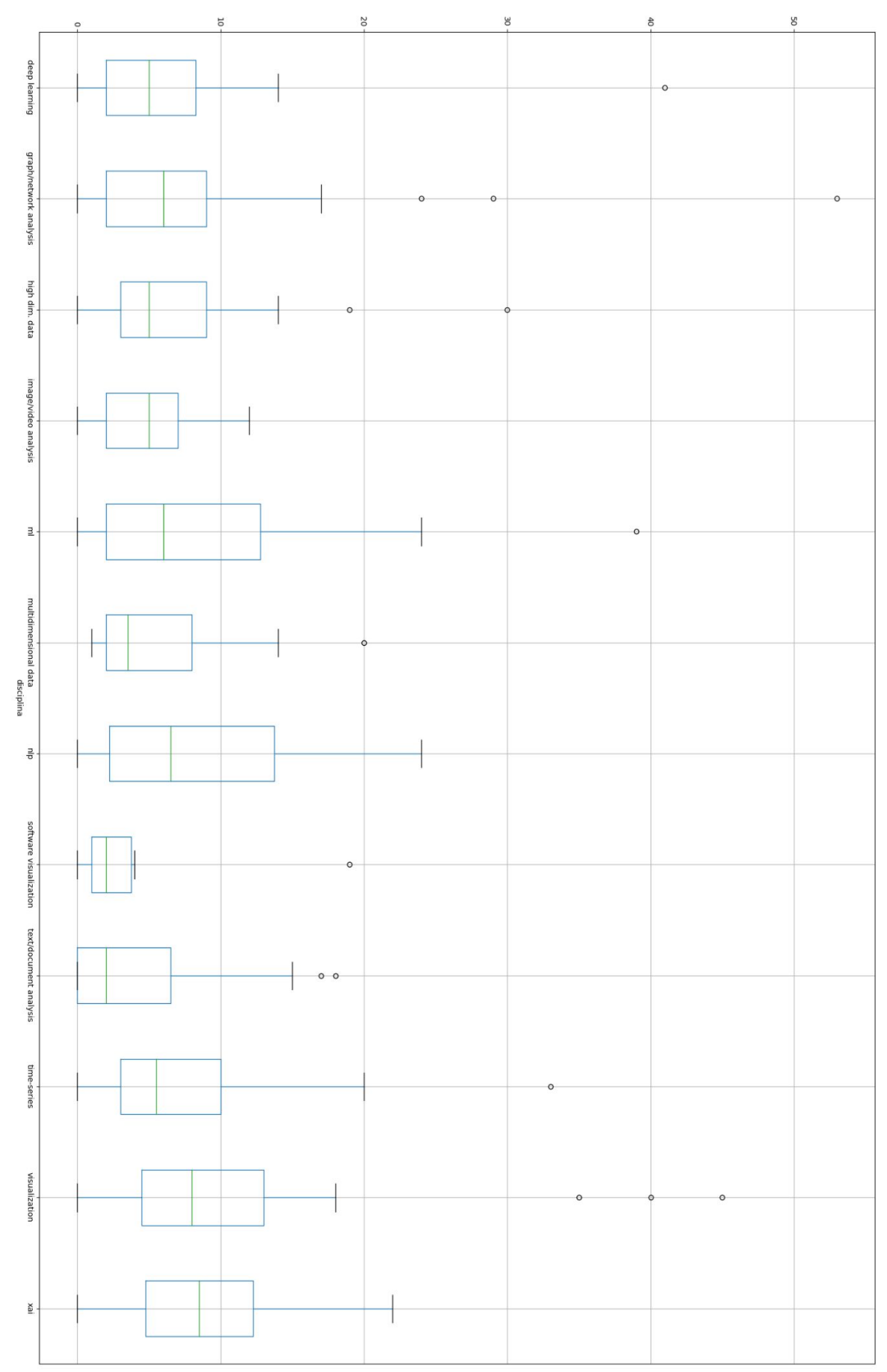


Fig. 15 Boxplots showing the distribution of filters (b) for each disciplines

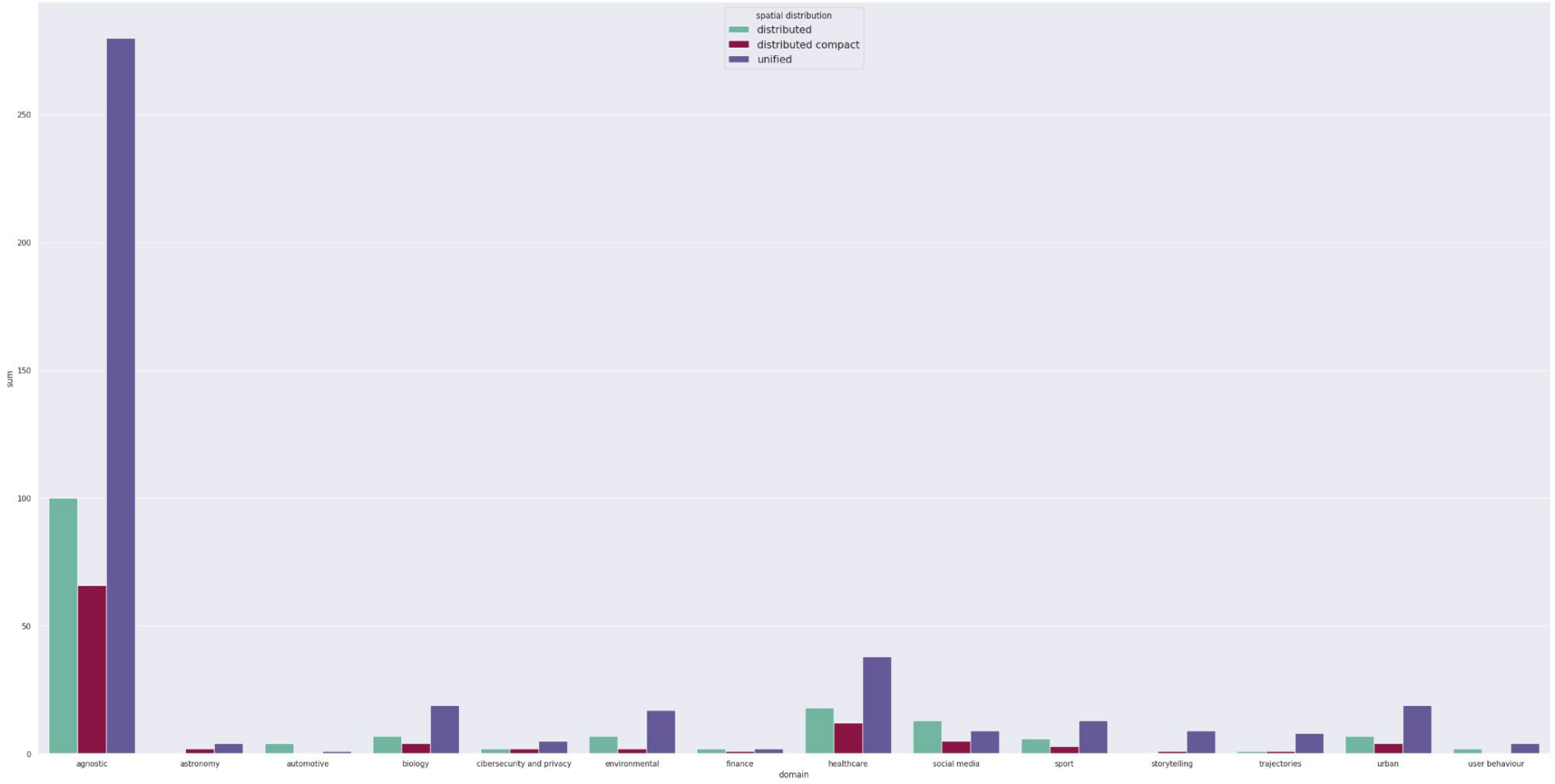


Fig. 16 Spatial distribution of filters (a) for each application domain

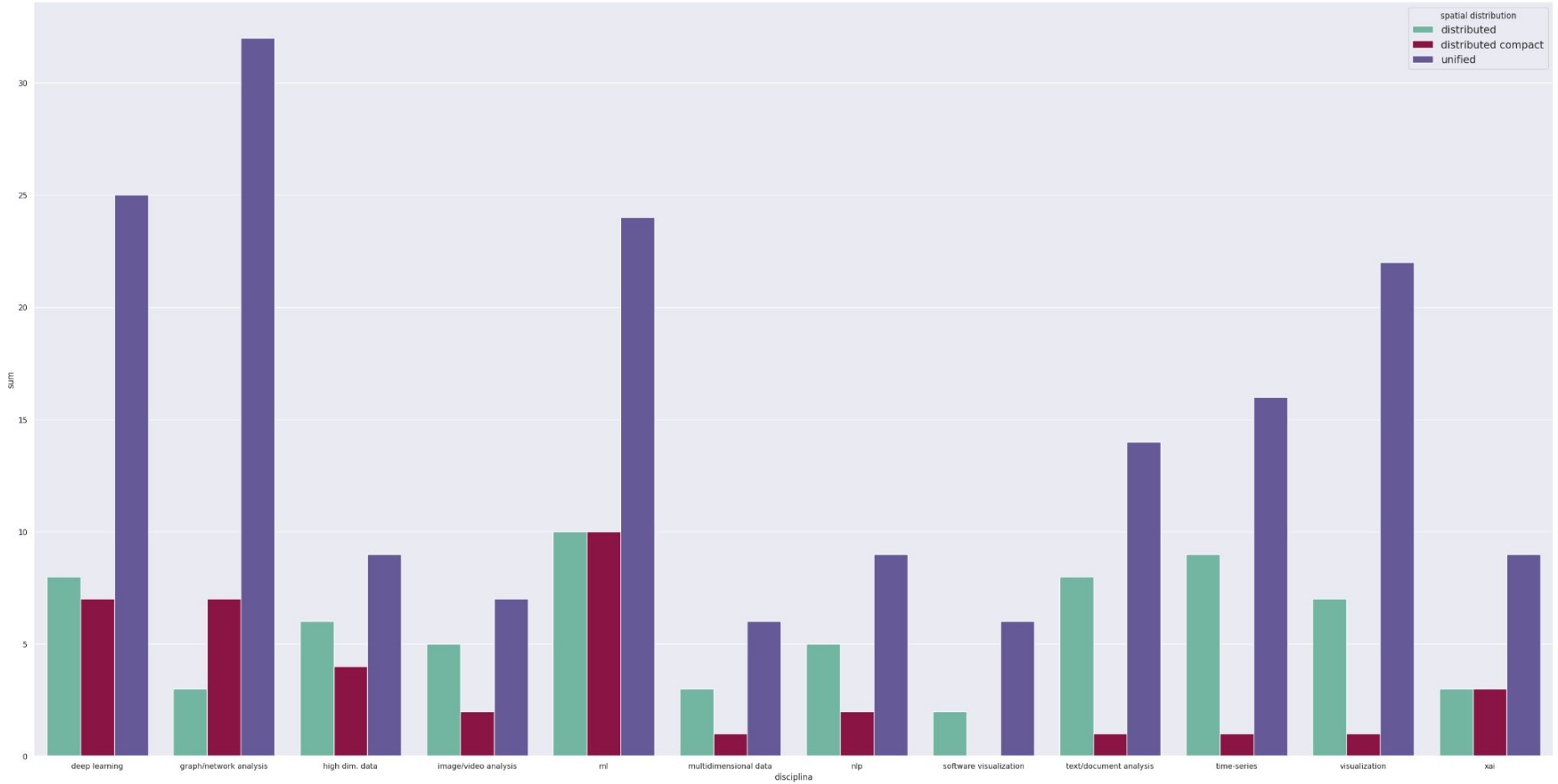


Fig. 16 Spatial distribution of filters (b) for each disciplines

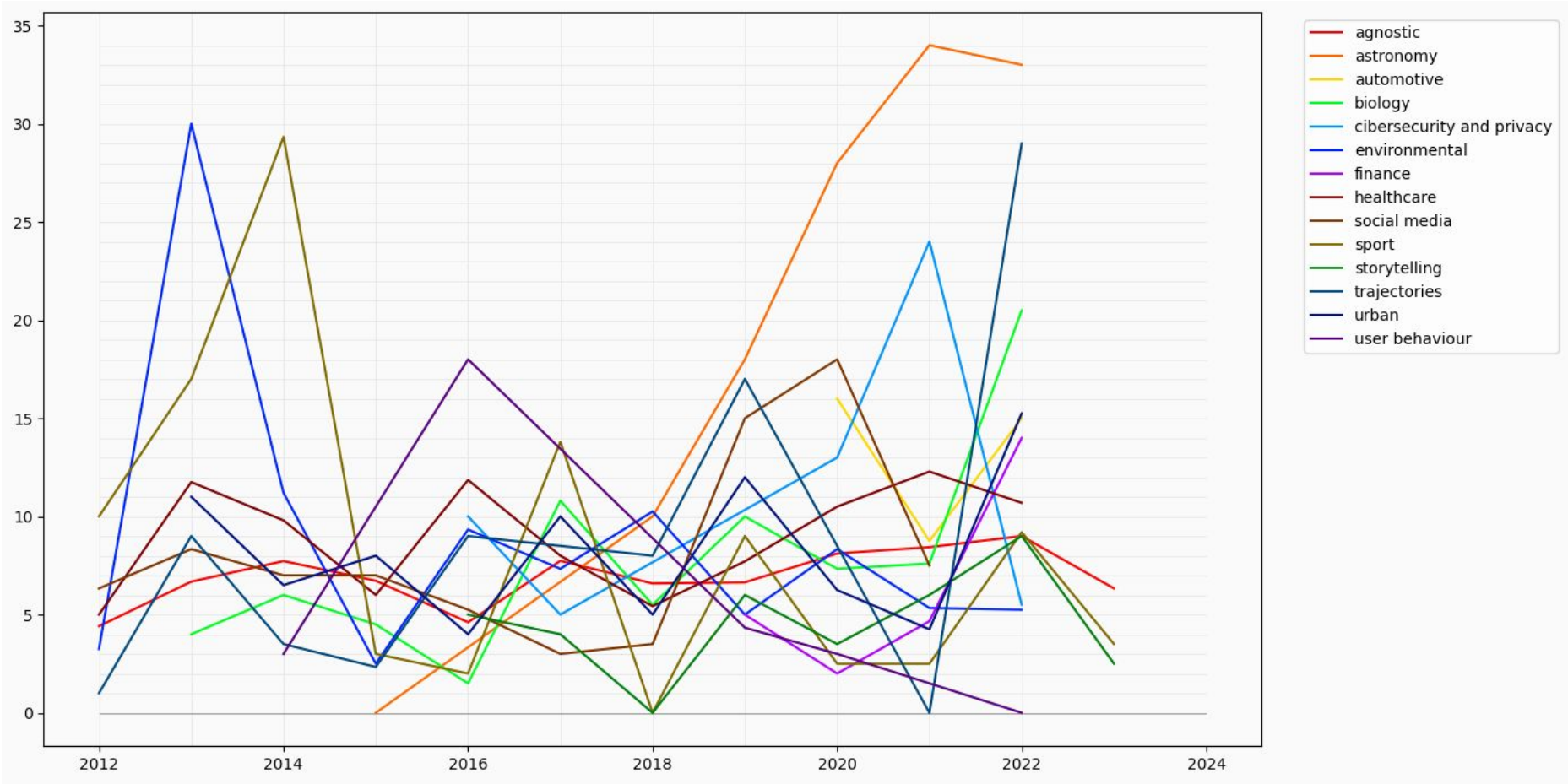


Fig. 17 Temporal distribution of filters (a) for each application domain

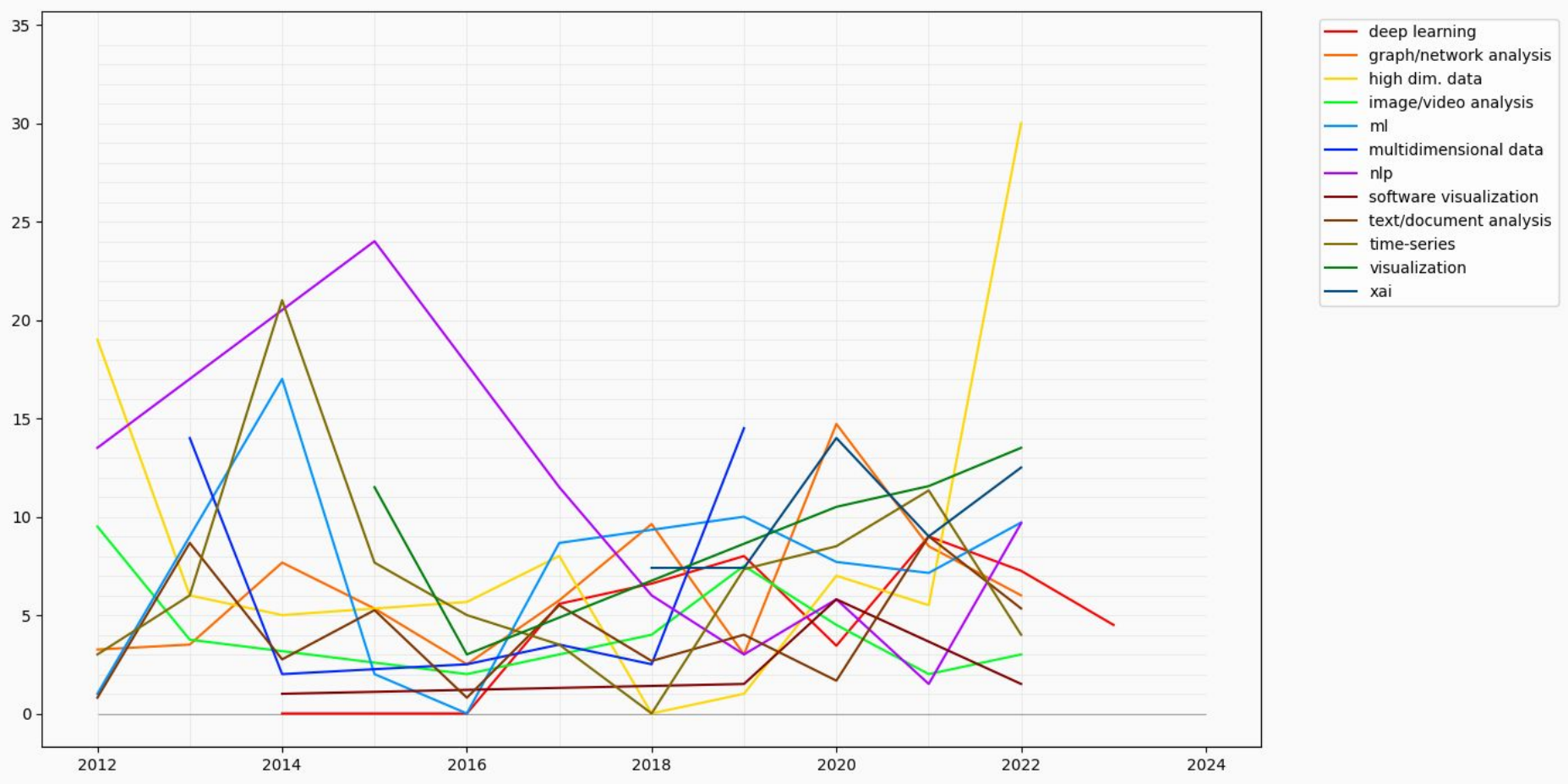


Fig. 17 Temporal distribution of filters (b) for each disciplines

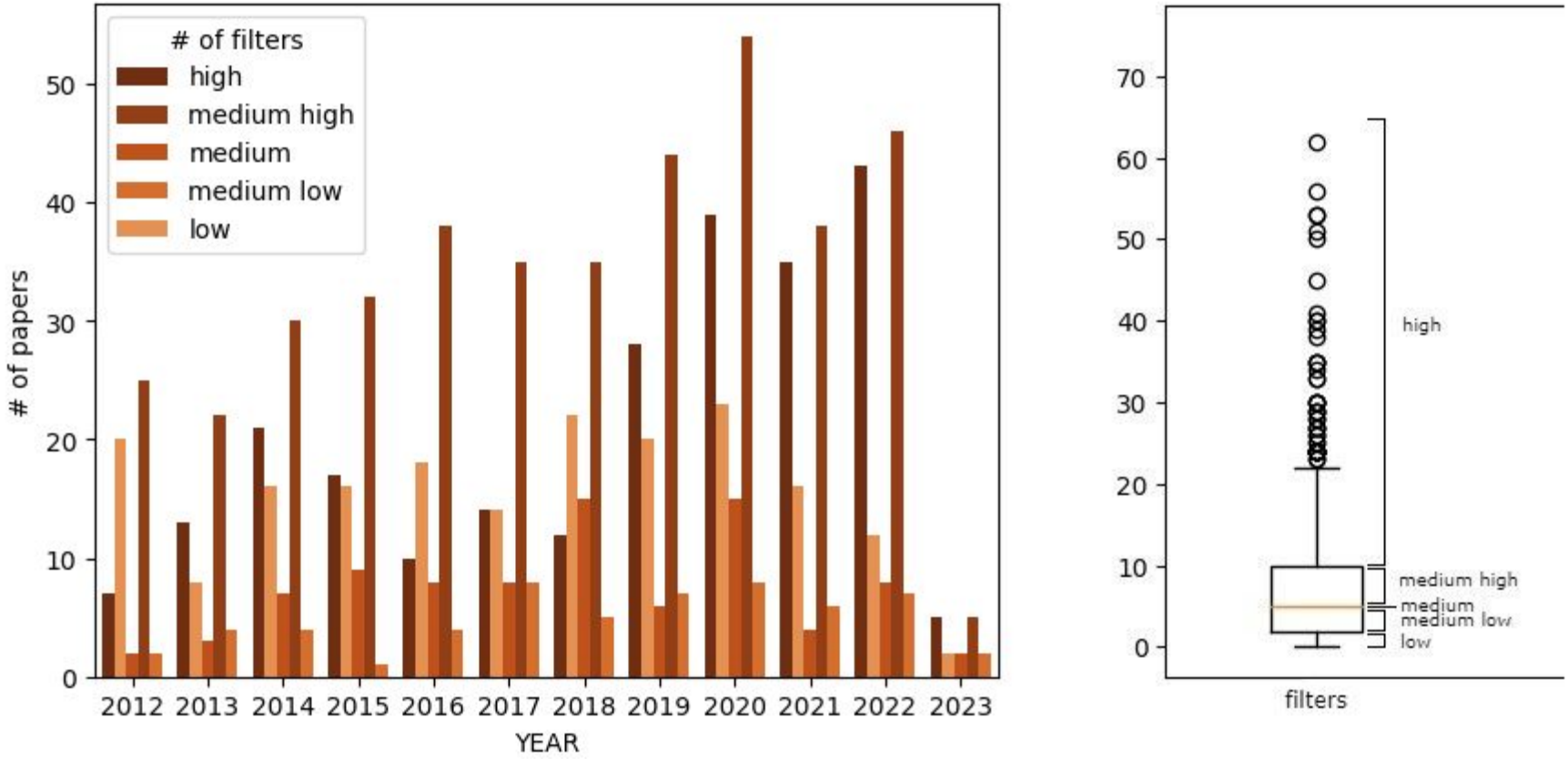
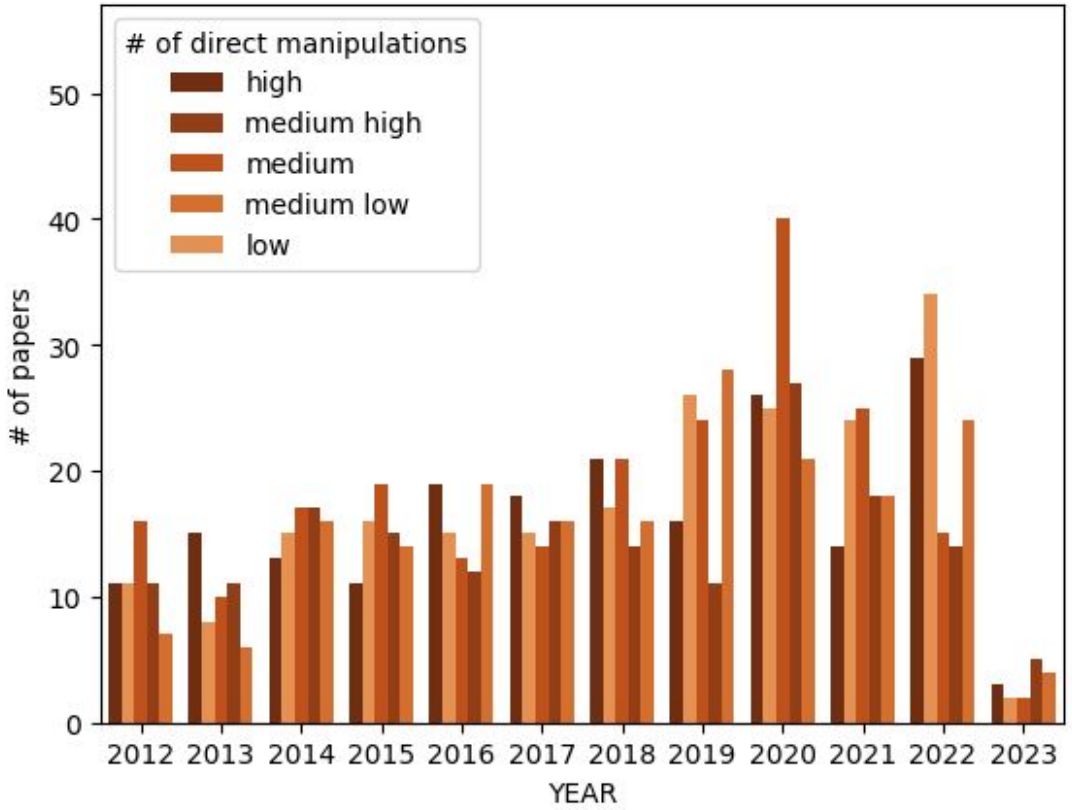


Fig. 18 (a) Bar chart showing the temporal trend of filters(2023 is still in progress so its data is partial), (b) boxplots showing how the five intervals were defined



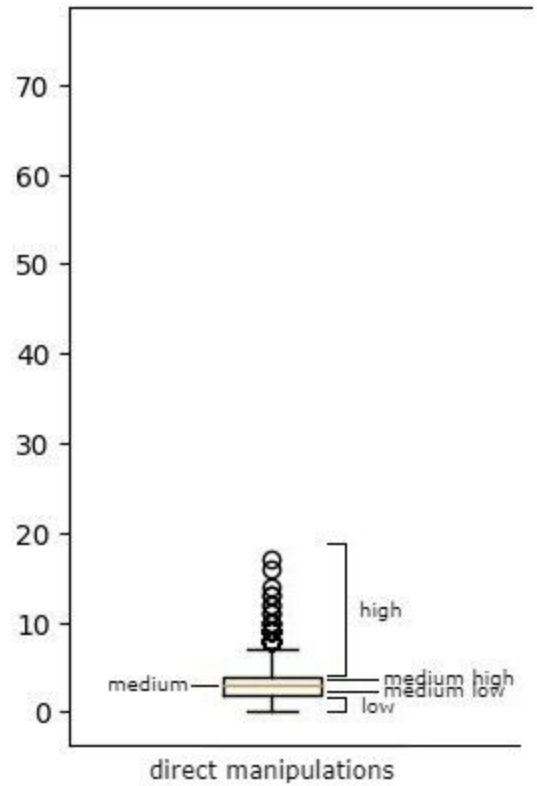
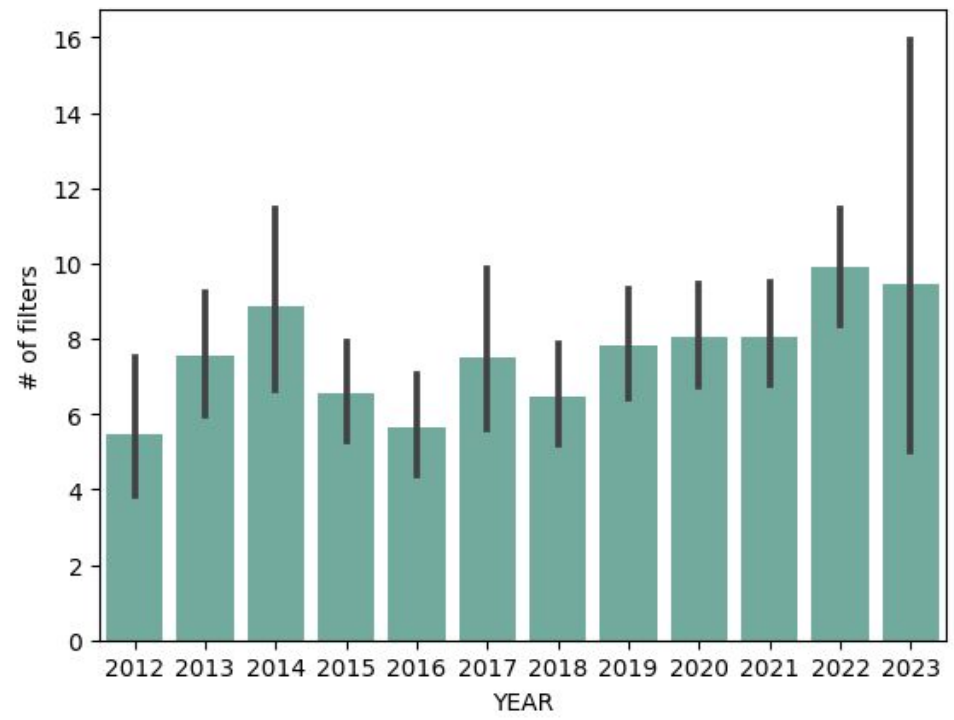


Fig. 18 (c) bar chart showing the temporal trend of direct manipulations (2023 is still in progress so its data is partial), (d) boxplots showing how the five intervals were defined



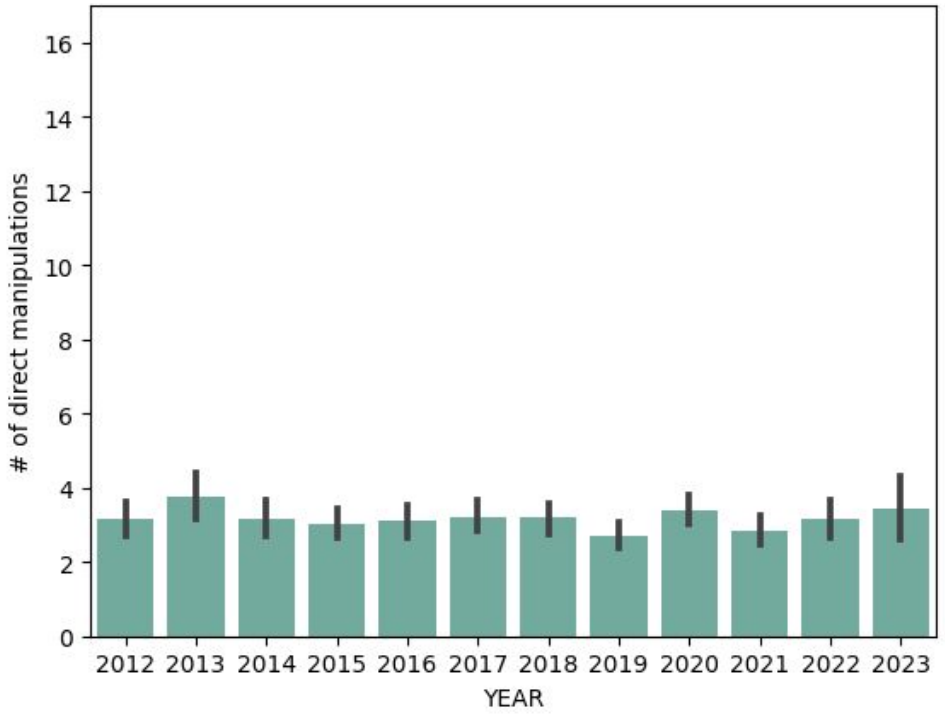


Fig. 19 Temporal distribution of the average of: (a) filters, (b) direct manipulations

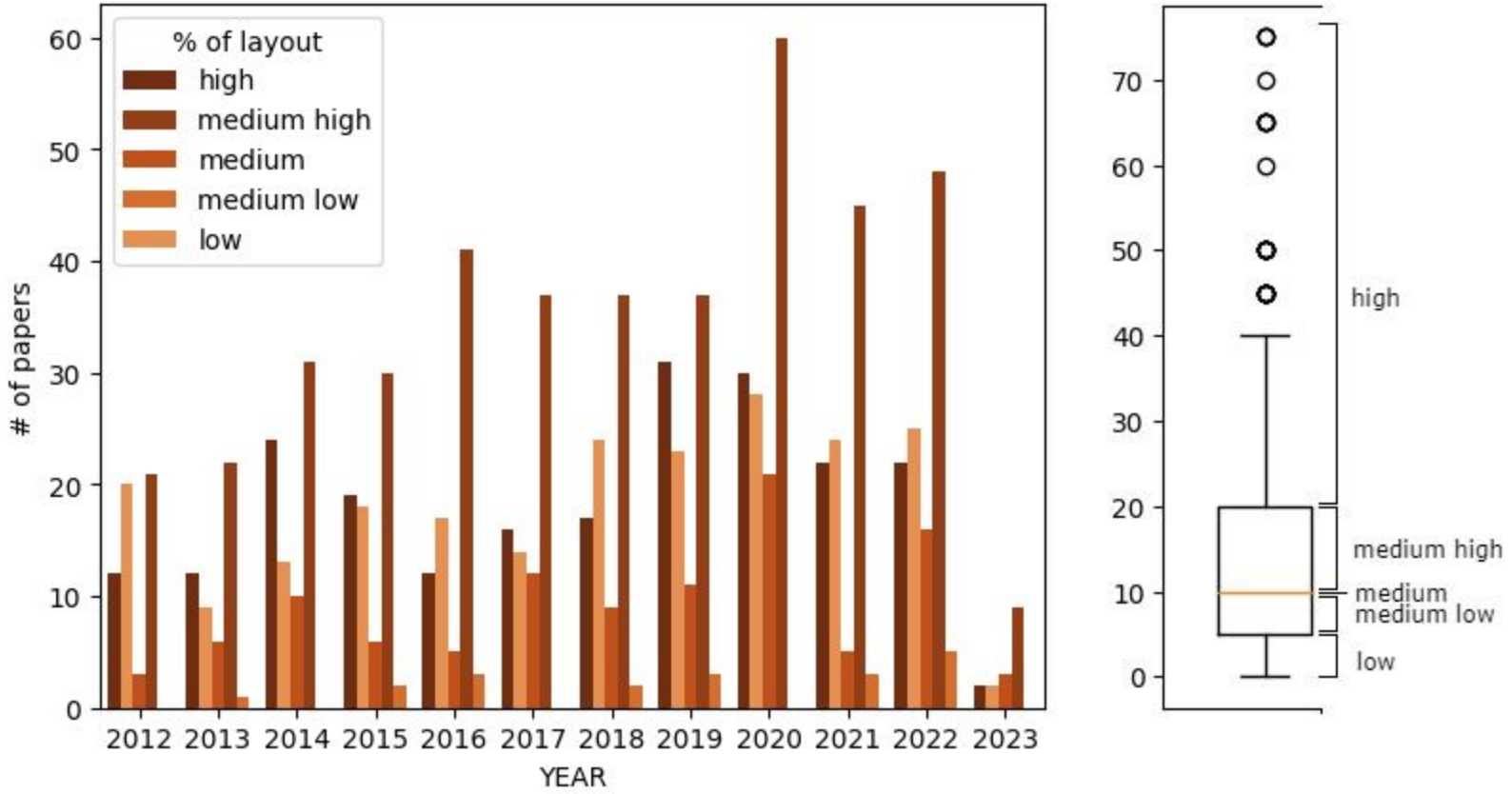


Fig. 20 (a) Bar chart showing the temporal trend of the % of layout occupied by the filters (2023 is still in progress so its data is partial), (b) boxplot showing how the five intervals were defined

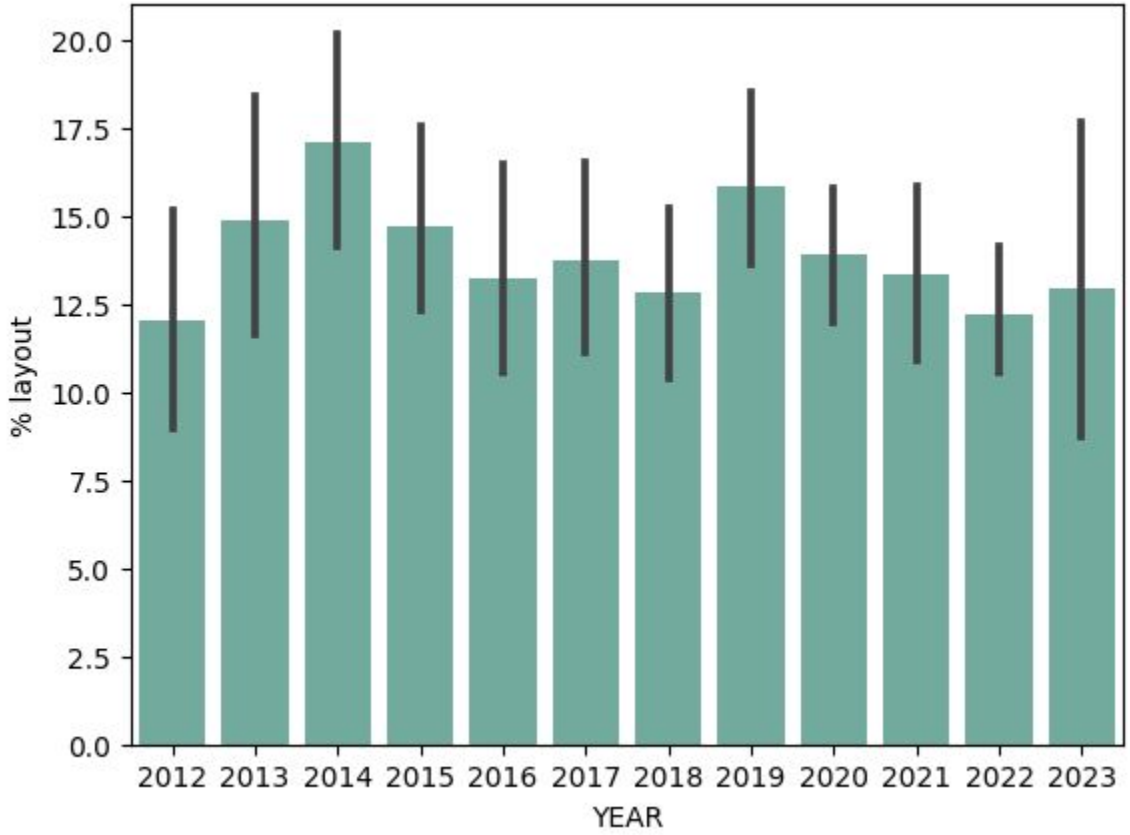


Fig. 21 Temporal distribution of the average of the \% of layout occupied by the filters

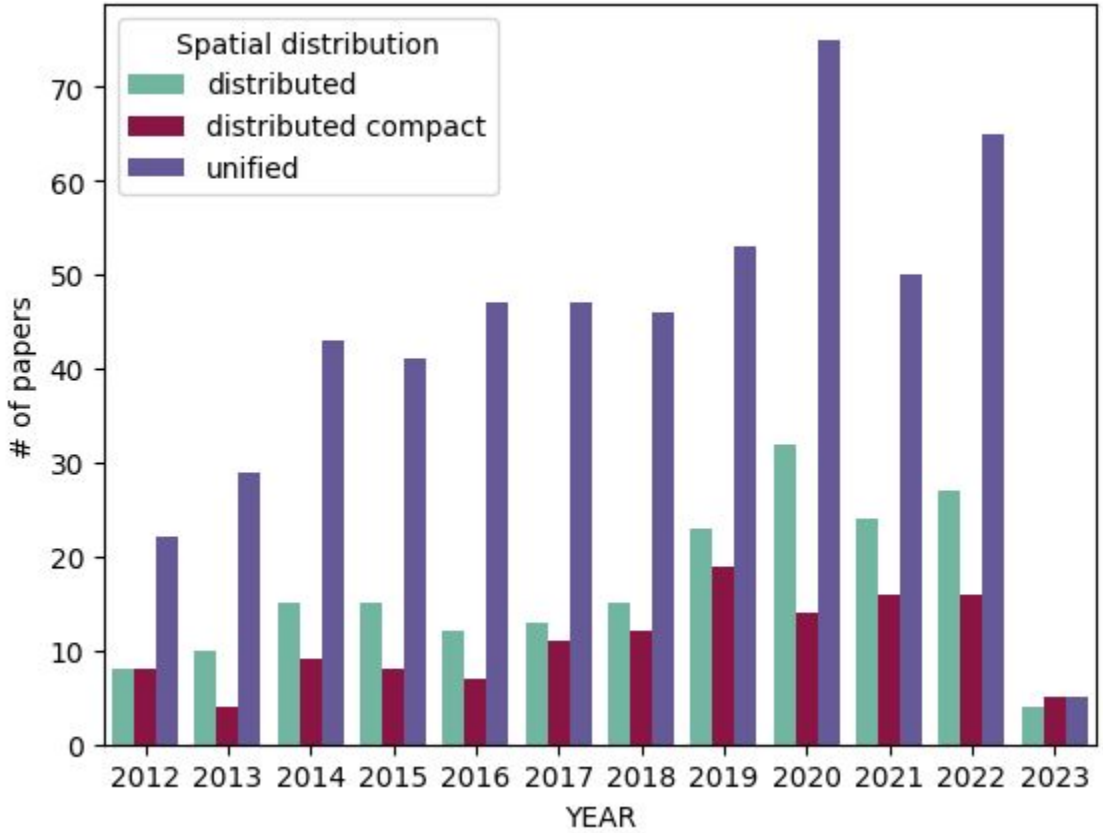


Fig. 22 (a) Temporal distribution of spatial distribution of the filters within the systems

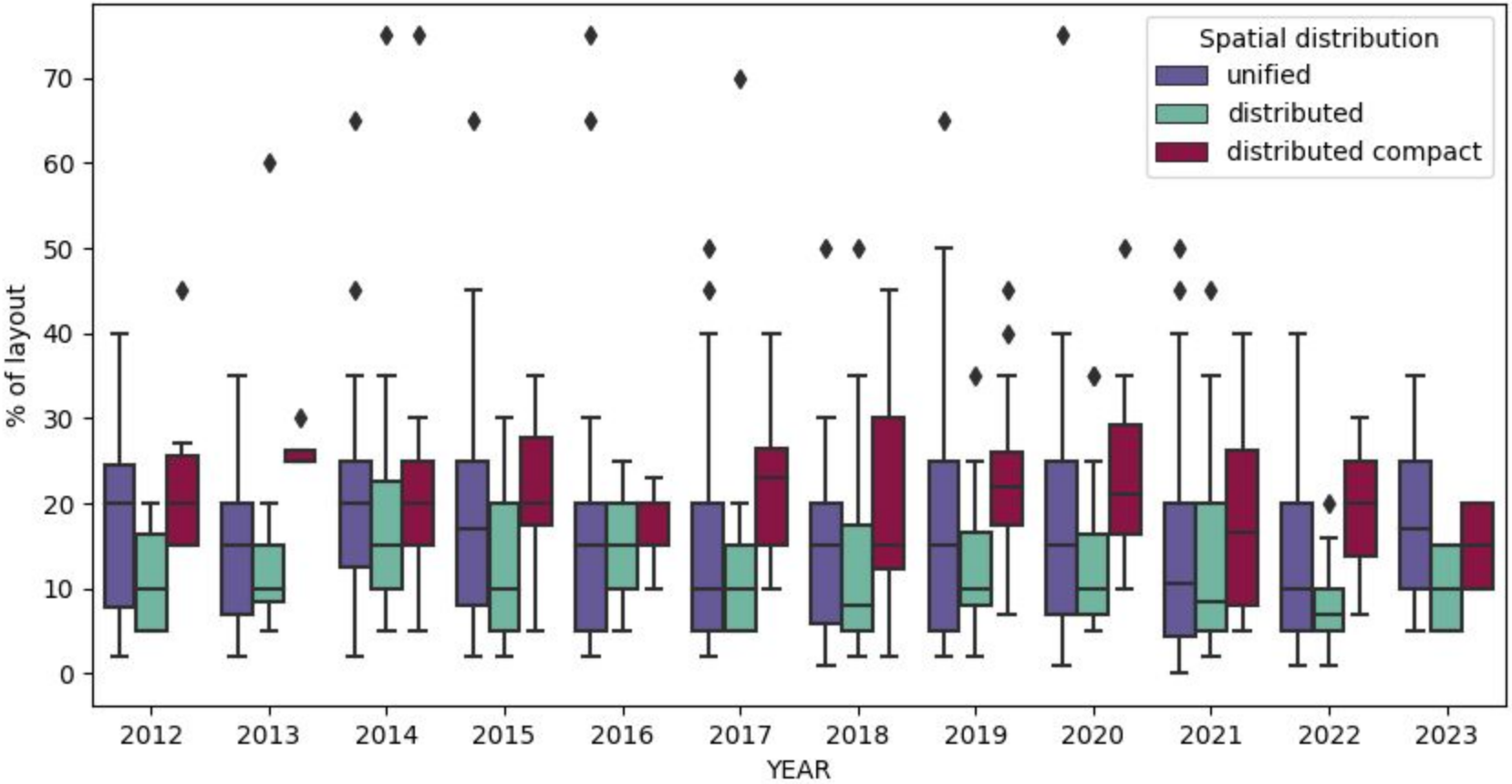


Fig. 22(b) temporal trend of the percentage of layout occupied for each spatial distribution

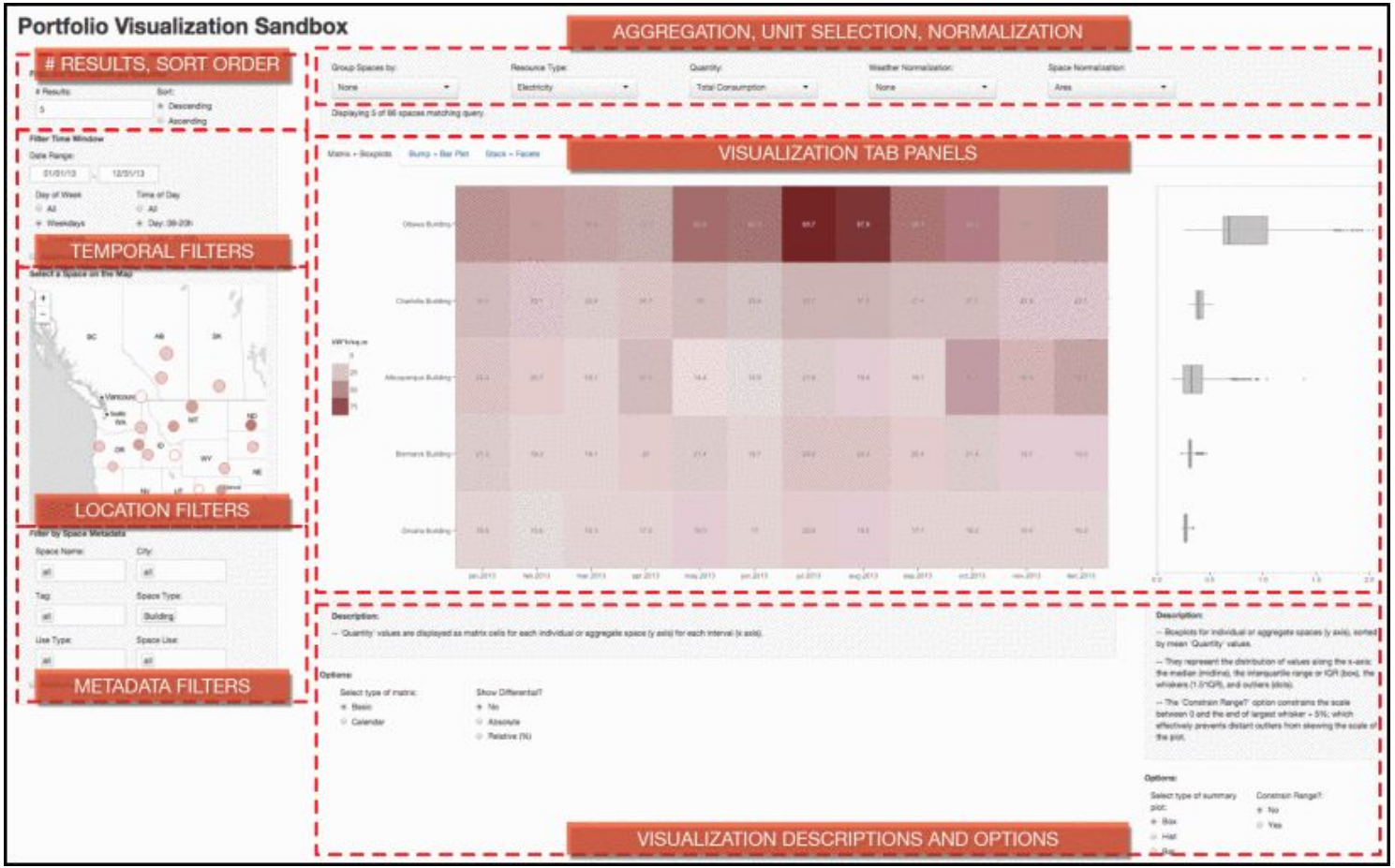


Fig. 23(a) Interface implemented by Brehmer et al.[10], section "LOCATION FILTERS" shows the geomap filter

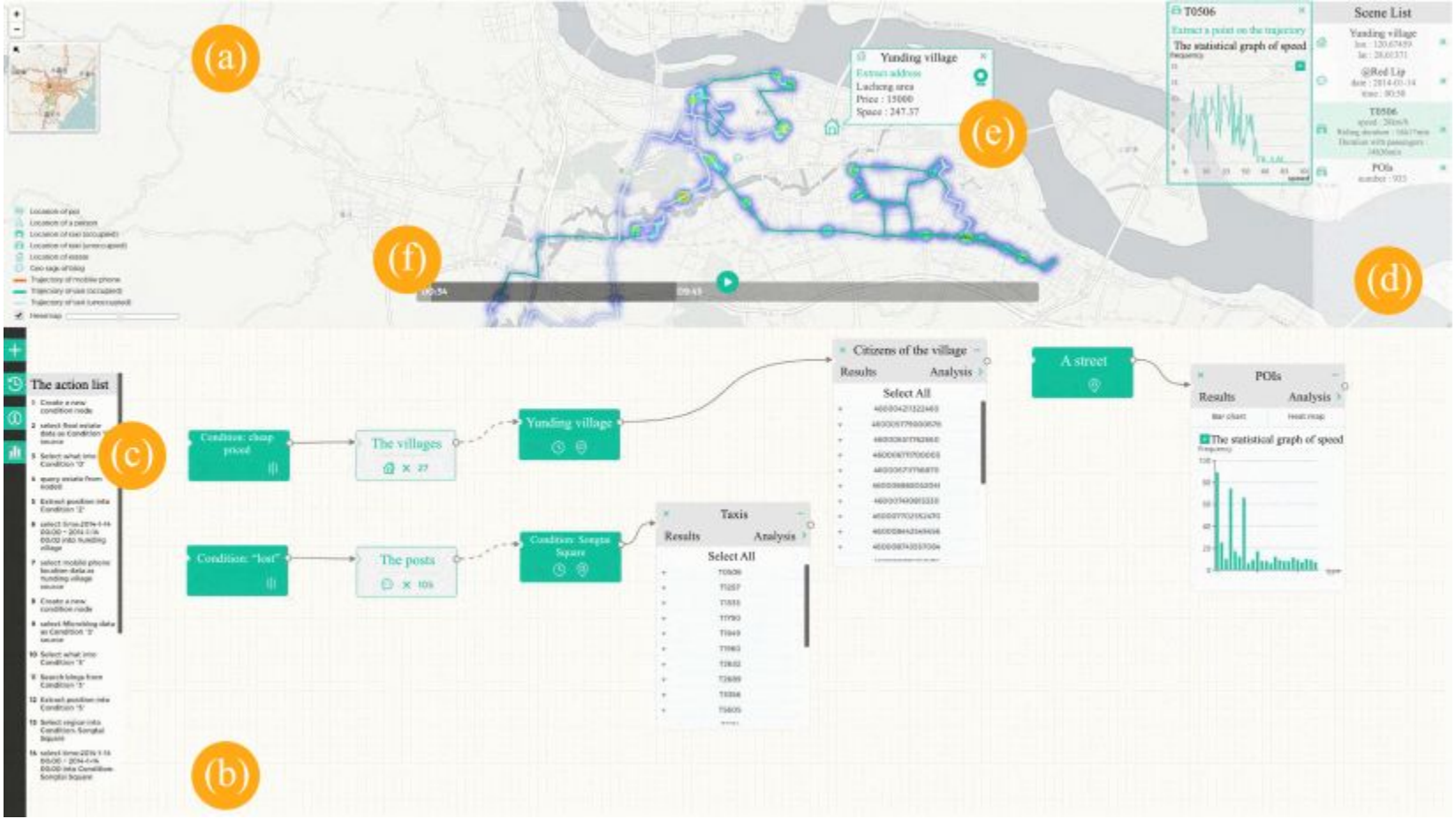


Fig. 23(b) Interface implemented by Chen et al.[16], section b shows the explicitness of the query

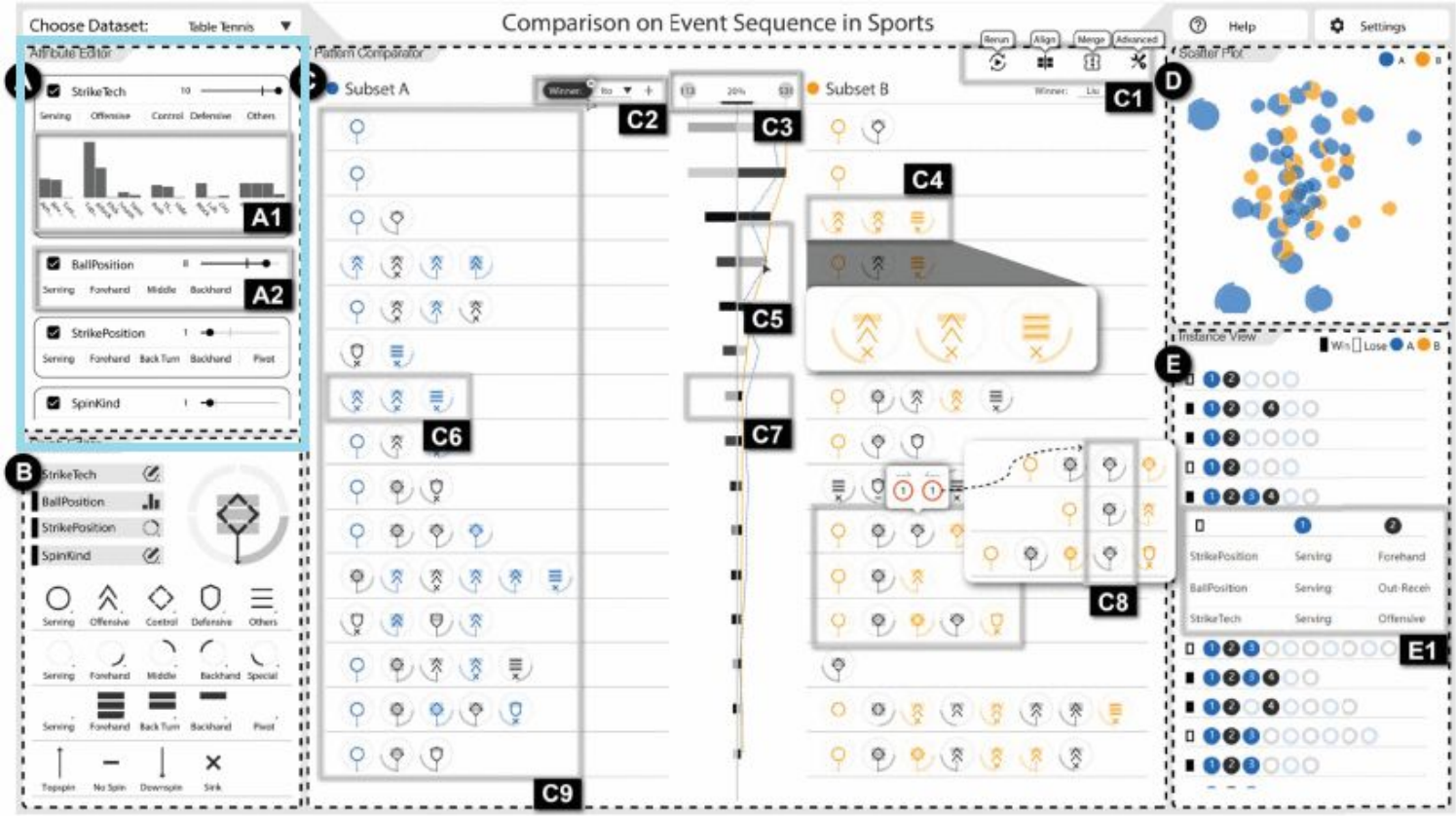


Fig. 23 (c) Interface implemented by Wu et al.[83], section A shows the expandable filters

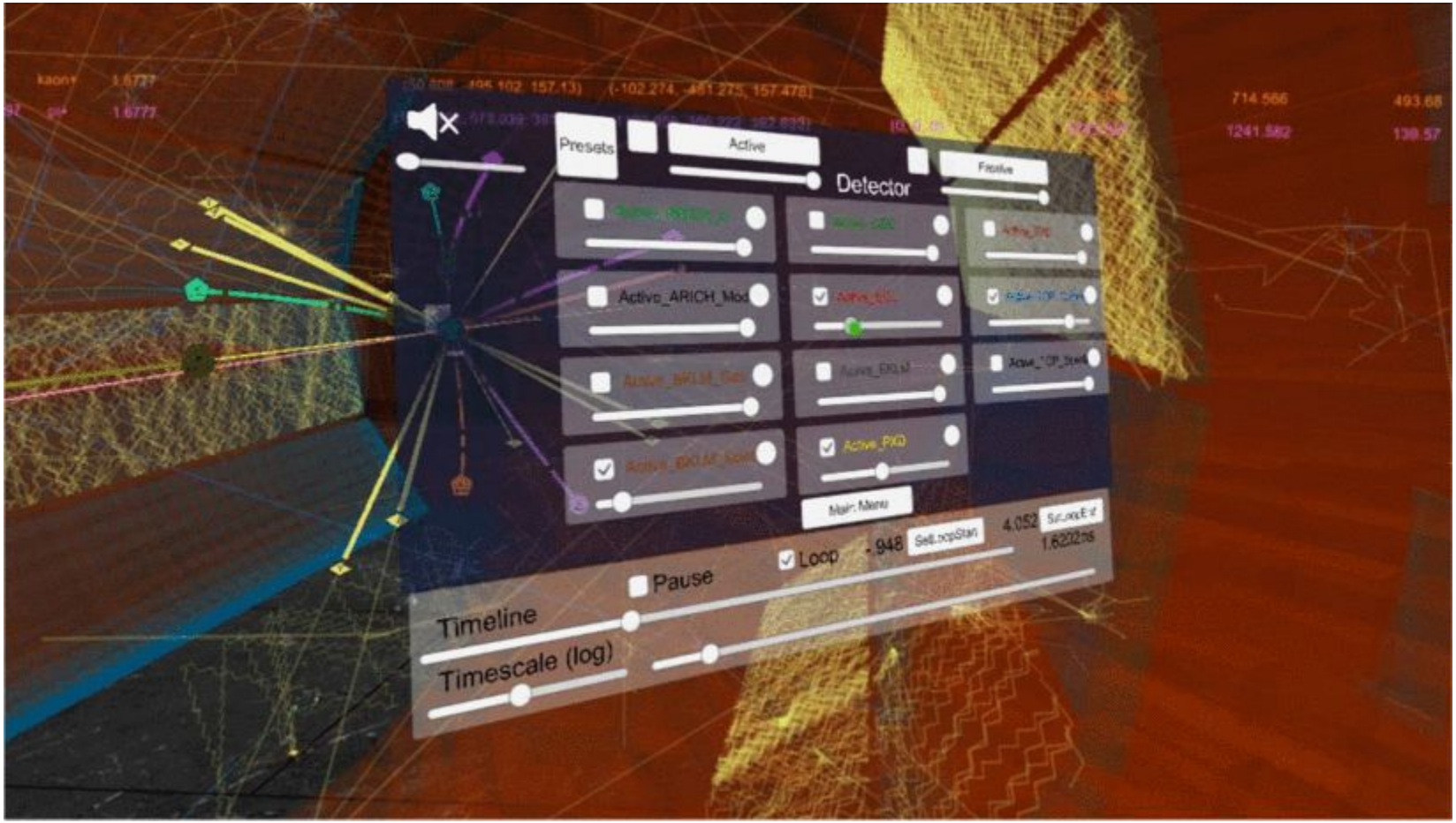


Fig. 23 (d) 2D diegetic menu implemented in the immersive system proposed by Dure et al.[24]

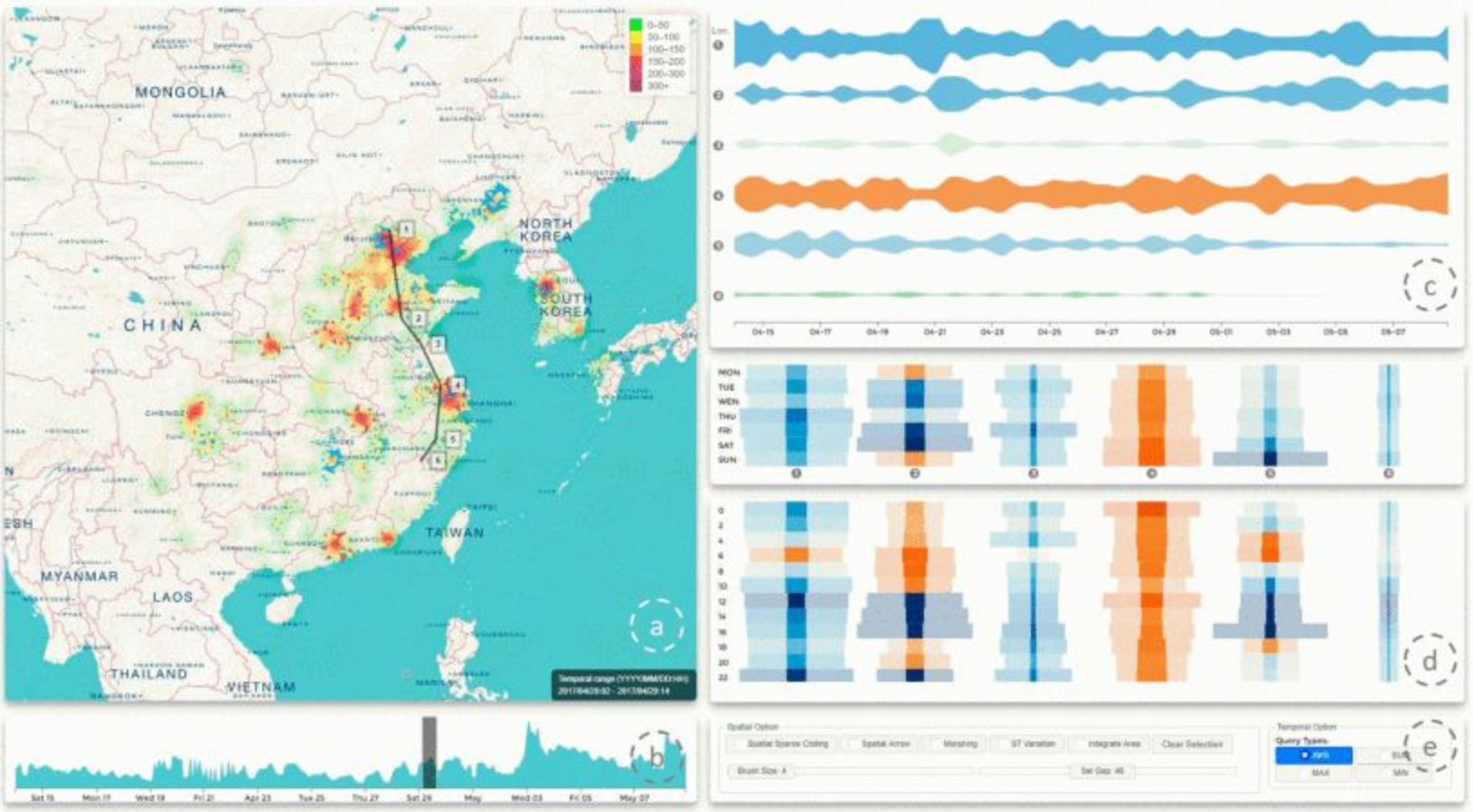


Fig. 24 (a) System interface by Li et al.[48]: section b shows the analyzed timeline

Fig. 24 (b) DECE system interface [20]: it can be seen that the table occupies most of the visualization so it is not possible to consider it as a filter

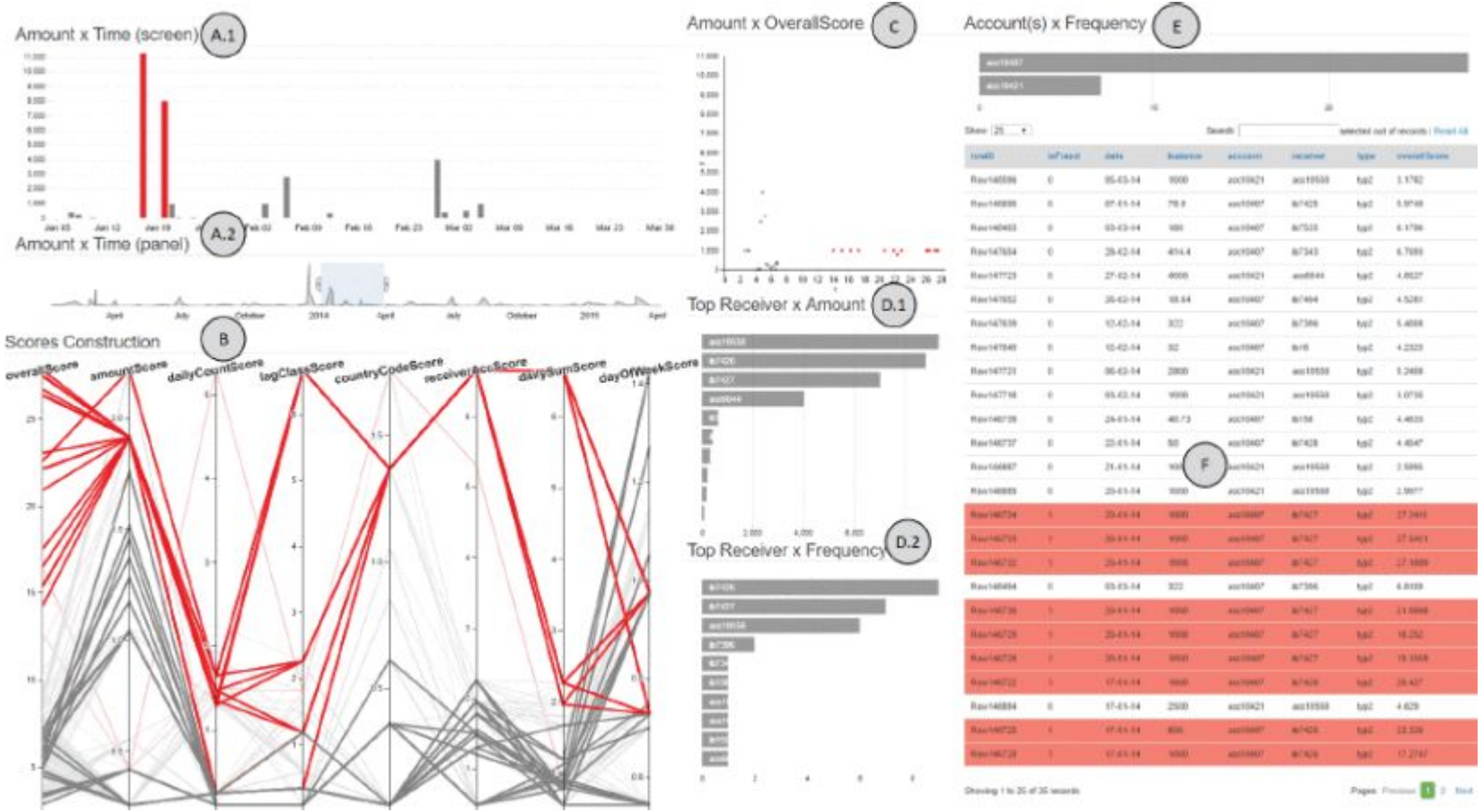


Fig. 25 (a) Eva system interface [46]: section A.2 shows the line-chart which is categorized as a visualization

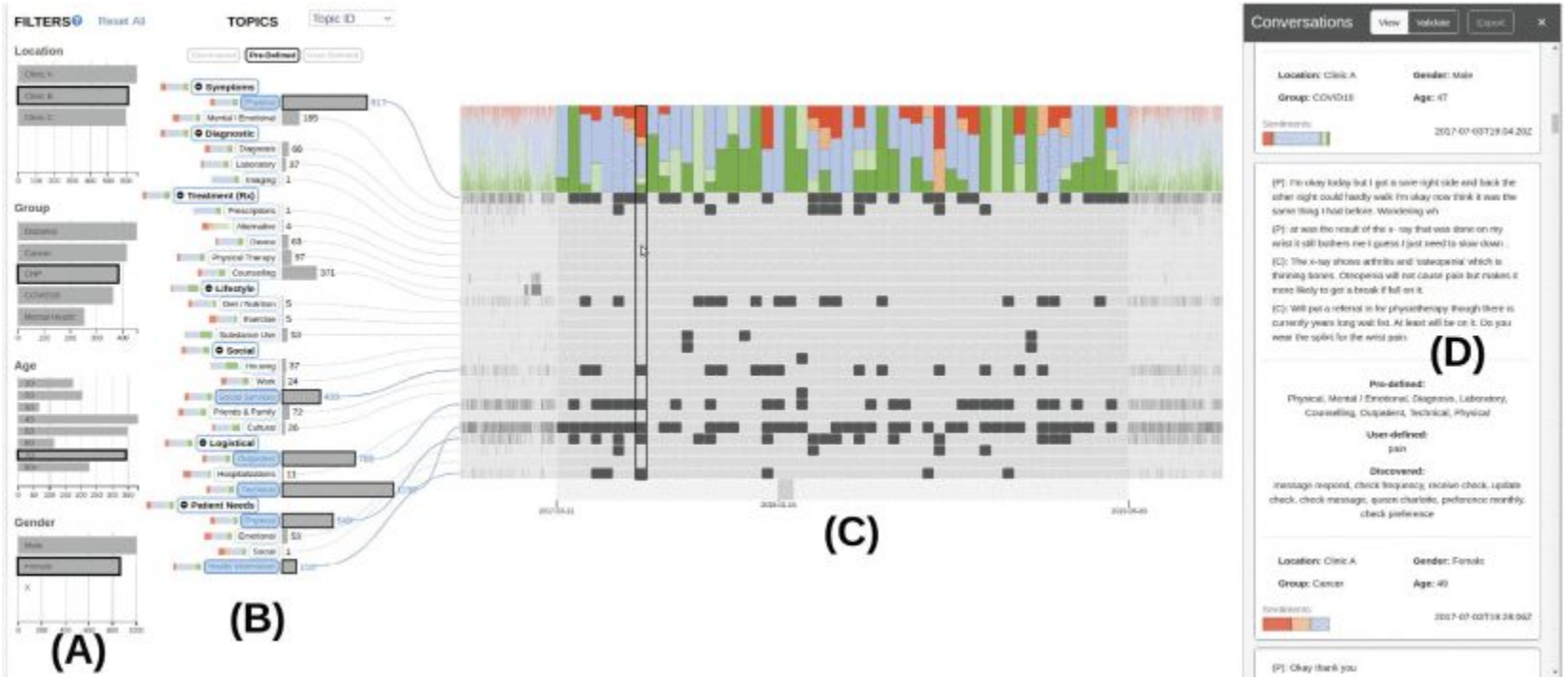


Fig. 25 (b) System interface implemented by Li et al.[46]: section A and B show the implemented cross-filters

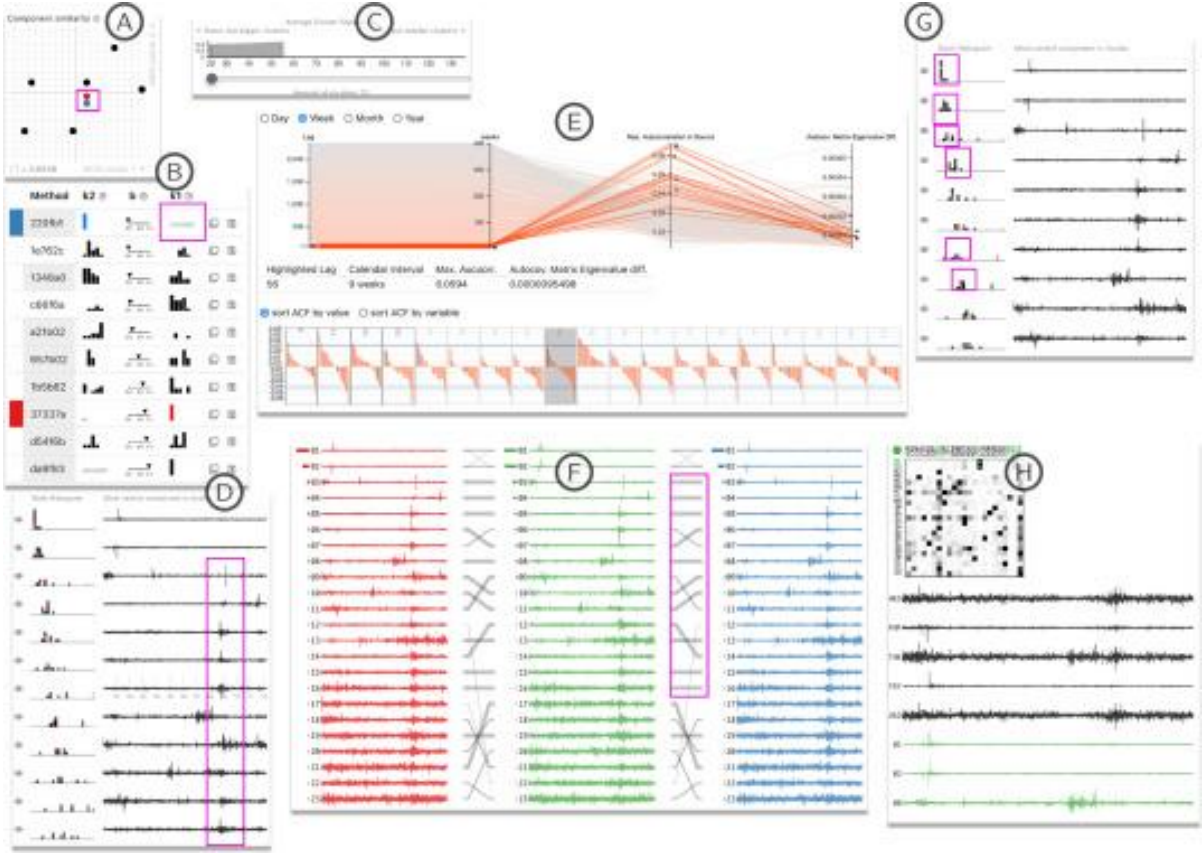


Fig. 26 System interface implemented by Piccolotto et al.[69]: section C shows the implemented active filter