Appendix for Route Packing: Geospatially-Accurate Visualization of Route Networks

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In this appendix, we provide a case study of using the Route Packing technique in the aviation domain for a flight planning 
scenario\(^1\). The existing prevalent tools in this domain primarily support the visualization of one flight path at once. Using 
our shifted and packed tapered lines for direction, and concentric rings for stops, our technique enables the comparison of 
multiple flight paths. Figure 1 shows an example of displaying 12 flight routes from the Montgomery Field (KMYF) airport 
to the San Luis Obispo (KSBP) airport, overlayed on a instrument flight rules (IFR) enroute low altitude chart. These 12 
paths—obtained through the FltPlan.com website \([1]\)—are historical flight plans filed by other pilots.

Based on Figure 1, we can observe three major patterns: travel over sea, travel along the coast, or travel along an inland 
route. Using Route Packing, pilots can compare the advantages and disadvantages of multiple flight paths, as well as the 
frequency of travel among pilots that have recently filed a flight plan. For example, when zoomed in, it is easy to identify 
that seven of the 12 prior flight plans fly over the Seal Beach (SLI) very high-frequency omnidirectional range (VOR), which 
informs the end-user that the SLI VOR has been a preferred navigation aid of pilots between KMYF and KSBP.

Route Packing technique can be integrated with other data sources. For example, temporary flight restrictions (TFRs) and 
inclement weather could be displayed simultaneously with the array of routes to identify which routes would best avoid the 
obstacles.

REFERENCES


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Fig. 1. 12 flight routes from the Montgomery Field (KMYF) airport to the San Luis Obispo (KSBP) airport.