

Workshop Title:

IntegrativeSentiment.io (iS.io) (ver. 1.0)

A Web-based Interactive Tool for Modeling Human Feedback on Big Data



Description:

iS.io is a state-of-the-art interactive (input-out (io)) and user-friendly web-based tool for modeling human feedback based on big data. This tool is developed by the *Urban Intelligence and Integrity Lab* (URBiLAB) at Southern Illinois University Carbondale. **iS.io** integrates the *Natural Language Processing* (NLP) and *Emotion Artificial Intelligence* frameworks to perform real-time and historical sentiment analysis on real-world big text data. It further automates data acquisition and cleaning processes to allow non-skilled users to develop the model. In addition, **iS.io** implements graph theories and geospatial mapping tools for the set of user-defined subject matter(s) (up to five different subjects), simultaneously, to visualize results, spatially. **iS.io** can further allow users to filter the geo-location and time accuracies/durations based on their desired spatial granularities from a point location to a global level. Users can use this tool for any research purposes, no matter what subject is explored. **iS.io** is developed based upon the R programming language and uses the R engine embedded in the platform, so users won't need to directly work with R interfaces such as RStudio software. Therefore, no coding skills are required to develop and execute the model. **iS.io** can aid designers, planners, and researchers, among other user groups, to explore human feedback on real-world subjects effectively and comprehensively.

In the workshop, we aim to introduce and provide instructions on how to use the tool. We also provide essential knowledge on the NLP and emotion-intelligence frameworks and how to interpret the outcomes for the given subject matter(s). For doing so, we provide slides and then continue with the tutoring of the tool and its application during the workshop hours. Attendees will need the API access provided by Twitter to be able to follow developing the example model step-by-step during the workshop (we provide a poster that includes instructions on how to apply for an academic API key from Twitter by July 6th, 2022). This workshop is held in 3 hours: 30-min presentation on principles of the NLP and Sentiment Analyses, 120-min for tutoring on the application of the tool, and 30-min for the Q/A. No limitations are involved in the number of attendees for this workshop. **iS.io** will be officially launched until July 11th, 2022.

Access Link to the Tool:

<https://www.urbiilab.com/tool/is-io>

Workshop Leader:

Mehdi Ashayeri, PhD

Workshop Assistant:

Soroush Piri, Graduate Student

Workshop Leaders' BIO:

Dr. Mehdi Ashayeri is an architect, engineer, and educator. Ashayeri's research centers at the intersection of energy, human systems (mobility and health), and computation in built environments. Much of his work has been focusing on developing frameworks and tools to support data-informed decisions for promoting human health and energy conservation for sustainable buildings and cities. In 2020, Ashayeri joined Southern Illinois University at Carbondale (SIUC) as an assistant professor of architecture. Ashayeri also serves as the founding director at URBiLAB.



SIMAUD 2022

SYMPOSIUM ON SIMULATION FOR ARCHITECTURE + URBAN DESIGN



1
Collect and Store:
Human Feedback



2
Clean and Filter:
Dataset



3
Compute/Model:
Human Sentiment



4
Visualize:
Results

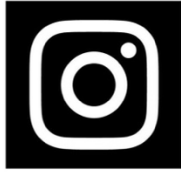


5
Map:
Geo-Feedback

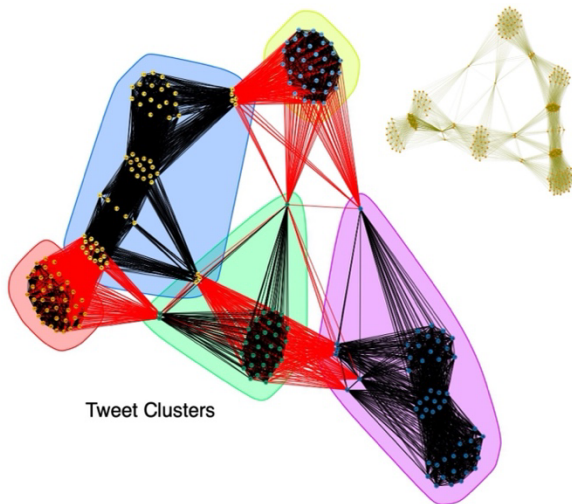
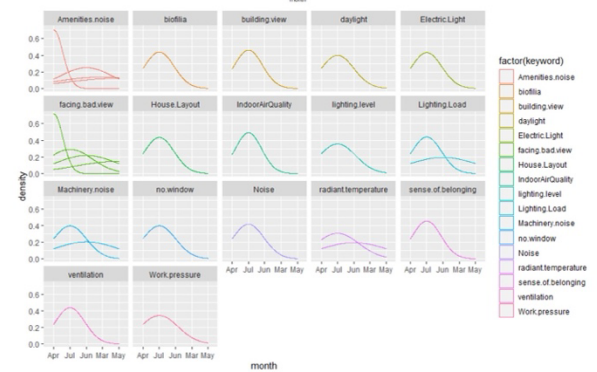
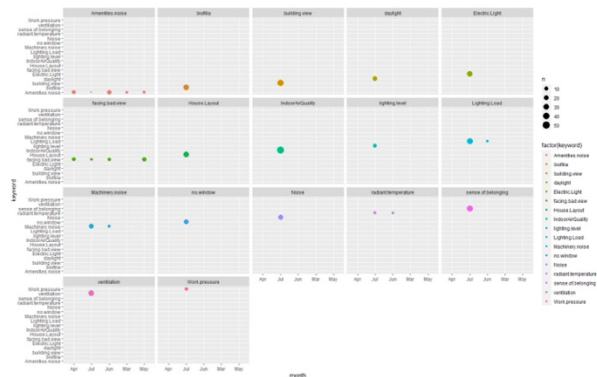


6
Compare:
Sentiments

iS.io



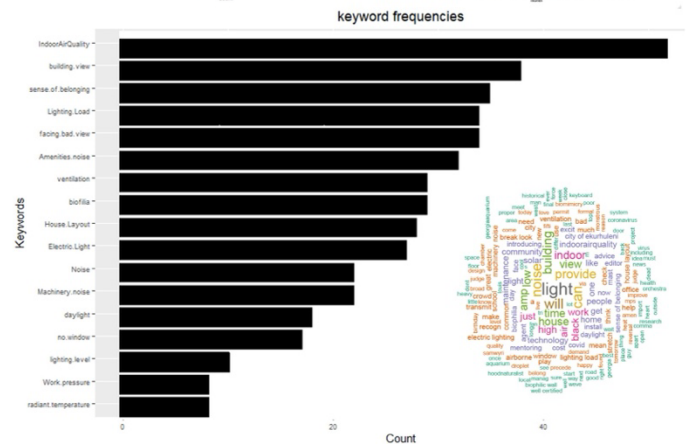
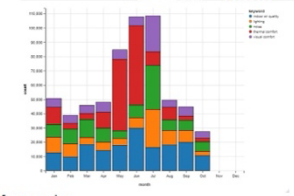
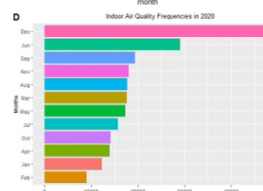
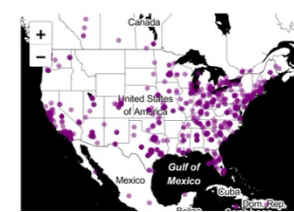
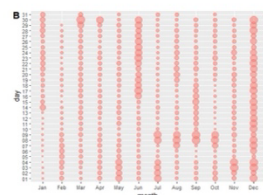
R Programming language



Tweet Clusters



Vertices within Community



Flowchart of the iS.io framework (top-left) and some samples of results



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