PestSignal

Google Trends API access at UVA

Research access note | 4 September 2026

Purpose

PestSignal is a proposed 2026-27 University of Virginia Systems & Information Engineering capstone on forecasting residential pest and wildlife service demand. The project separates weather-driven timing from landscape and ecological exposure, then tests whether combining the two improves forecasts. Google Trends search interest is one public demand proxy, alongside meteorological and geospatial data.

This note is intended to stand on its own and be forwarded to anyone at UVA who may know about institutional access. The immediate question is whether UVA already has access to the limited Google Trends API alpha, or a comparable licensed source, and what to submit if a new application is needed.

What the project needs from Trends

- Programmatic access for a reproducible Python workflow.
- Daily or weekly series that can be aligned with weather events and lag windows.
- Consistent scaling across requests so multiple terms and markets can be compared without re-normalizing every pull.
- The finest U.S. subregional geography available through the API. DMA, county, ZIP, and city support should be treated as a feasibility question, not assumed.

Recommended route

1. Ask UVA Research Data Services whether a faculty member, lab, school, or central research group already has Google Trends API alpha access, and whether there is a UVA-licensed alternative for programmatic regional search-interest data.
2. Submit a new Google Trends API alpha application in parallel, using the faculty advisor as the academic applicant and PestSignal as the immediate use case. There is no need to wait for the internal access check before applying.
3. Do not fix the pilot-market geography until Google or an existing UVA user confirms the smallest U.S. geography actually available. The public alpha page documents countries and sub-regions, "sometimes more," but does not guarantee DMA-, county-, ZIP-, or city-level access.

Why this is worth doing now: Google says alpha applicants are prioritized when they have a concrete use case, can start soon, and are willing to provide feedback. PestSignal has a defined 2026-27 schedule and a specific research design, so it can make that case directly.

Suggested UVA access inquiry

Send to researchdataservices@virginia.edu. Copy data@virginia.edu if useful. Research Data Services handles data discovery, access, licensing, and acquisition for academic research.

Subject: Google Trends API alpha access for UVA SIE capstone

Hello,

I am advising a 2026-27 UVA Systems & Information Engineering capstone, PestSignal, that will study weather and landscape drivers of residential pest and wildlife service demand. Google Trends search interest is one of the project's public demand proxies, and the team needs reproducible programmatic access across several U.S. markets and multiple search-term baskets.

Before we rely on a new application, do you know whether any UVA faculty member, lab, school, or central research group already has approved access to the official Google Trends API alpha? If so, I would appreciate a referral to the appropriate contact to ask about collaboration or an additional approved account.

If UVA does not currently have alpha access, is there a UVA-licensed data source that provides programmatic Google Trends or comparable search-interest data at U.S. regional or metro geography? We would also appreciate the appropriate UVA Google Workspace or ITS contact if access requires an institutional Google Developers setting to be enabled.

Faculty advisor: Prof. Garrick Louis, Systems & Information Engineering. The project is an academic capstone with planned scholarly publication and an industry sponsor providing domain and validation support.

Thank you.

Google Trends API alpha application draft

The application is embedded on Google's Trends API developer page, so field wording may change. The language below is written to fit the substantive prompts Google currently emphasizes. It can be shortened if the live form imposes character limits.

Field	Entry
Applicant	Prof. Garrick Louis
Institution	University of Virginia
Department	Systems & Information Engineering
Role	Faculty advisor / academic applicant for the capstone project
Project	PestSignal: Separating Weather and Landscape Drivers of Demand for Residential Pest and Wildlife Services
Project type	Academic capstone research with an industry sponsor
Start	Fall 2026
Expected outputs	Capstone system and prototype; reproducible research artifacts; planned SIEDS / IEEE-format paper and presentation
Google account	Use the exact Google-enabled UVA account that should receive the alpha invitation
Google Cloud project	Add the project ID if the form requests one and a project has already been created

Use case

PestSignal is a University of Virginia Systems & Information Engineering capstone studying whether residential pest and wildlife service demand can be forecast more accurately by separating weather-driven timing from landscape and ecological exposure. The project will compare seasonal baselines, weather models, landscape models, and combined models across several U.S. pilot markets. Google Trends search interest will be used as one public behavioral demand proxy alongside public meteorological, ecological, land-cover, and housing data, with validation against de-identified aggregated service-demand data where available.

Why API access is needed

The project needs reproducible, programmatic search-interest series that can be aligned to weather events and lag windows, compared across multiple pest-service and species/guild term baskets, and refreshed through a documented Python pipeline. Consistent scaling across requests is important because the study compares terms and markets and should not depend on the public interface's per-request normalization. We are also requesting the finest U.S. subregional geography available through the alpha so Trends signals can be reconciled with market- and neighborhood-scale environmental exposure measures. We will design to the geography the API actually supports rather than assume DMA, county, ZIP, or city access.

Planned use of the data

The team will pull daily or weekly search-interest series for screened pest-service and species/guild term baskets in 3-5 pilot markets, then align those series with NOAA/NCEI and PRISM weather measures and spatial exposure indices built from public sources such as USGS hydrography, the National Wetlands Inventory, NLCD land cover and tree canopy, FEMA floodplains, soils, and Census/ACS housing data. Search interest will be treated as a proxy rather than ground truth. Low-volume or suppressed observations will be documented as missing or not estimable rather than treated as zero.

Research questions

- How much variation is explained by seasonality alone, by weather beyond seasonality, by landscape exposure, and by weather-landscape interaction?
- What is the lag between discrete weather events and search-interest or service-demand response by service line?
- How well do search-interest proxies transfer across contrasting U.S. climate and landscape regimes?
- At what temporal and geographic resolution is Trends data sufficiently observable for reproducible inference?

Readiness and schedule

The team can begin in Fall 2026. The first phase is data feasibility and acquisition, construction of landscape exposure indices, and pre-registration of the evaluation plan. Weather-only, landscape-only, and combined model comparisons are scheduled for January 2027, followed by prototype and validation work in early spring. The capstone paper and presentation are planned for April-May 2027.

Feedback to Google

The project can provide concrete feedback on cross-request scaling and comparability, geographic availability and metadata, low-volume or suppressed terms, repeatability across time windows, batch comparison of term baskets, documentation, and integration into a reproducible Python research workflow. The semester schedule gives the team a defined period for testing and reporting issues rather than an open-ended exploratory use case.

Research outputs and sponsor context

This is an academic UVA capstone with planned scholarly publication. Applied AI Advisory is the industry sponsor and supports domain framing, data facilitation, and validation. Google Trends data will be used for research analysis and will not be resold or redistributed as a commercial dataset. Published results will be aggregate; the project will not attempt to identify individual users or reconstruct individual searches.

The geography point to verify before market selection

Google's public alpha page currently states that the API provides a rolling five years of data, daily/weekly/monthly/yearly aggregation, countries and sub-regions ("sometimes more"), and consistently scaled values that can be joined across requests. It does not publicly promise a specific U.S. geography below sub-region.

Working requirement for PestSignal

Request programmatic, consistently scaled daily/weekly data and the finest available U.S. subregional geography. Confirm the returned geographic grain before finalizing the 3-5 pilot markets. If the alpha cannot support the needed grain, the fallback is to redesign the Trends component at the supported geography and use other demand proxies for finer spatial validation.

What can proceed while access is pending

- Build and test the weather and landscape data pipeline using public sources.
- Define the search-term baskets and the rules for handling low-volume or suppressed series.
- Test the public Trends interface only as a feasibility baseline; do not treat it as the final reproducible data path.
- Keep market selection provisional until geography and observability are known.

Sources

Google Trends API alpha: https://developers.google.com/search/apis/trends

Google Search Central announcement: https://developers.google.com/search/blog/2025/07/trends-api

Google alpha access troubleshooting: https://developers.google.com/search/apis/trends/help/cant-access-docs

UVA Research Data Services: https://library.virginia.edu/data

UVA data discovery and licensed-data support: https://library.virginia.edu/data/datasources