BigBear.ai

AI/ML for Information Advantage

Nemesis brings together BigBear.ai's Virtual Anticipation Network (VANE) and Georgia Tech Research Institute's (GTRI) BlackForest capabilities to provide comprehensive situational awareness and assessment capabilities across the information operations environment.

Solution Brief. ↗

The Nemesis contract, sponsored by the Irregular Warfare Technical Support Directorate (IWTSD), will blend VANE and BlackForest's capabilities to enhance the depth and breadth of analysis that is currently available in the separate tools. The ultimate goal is to provide an AI enterprise platform for analysis in the Information Environment that leverages best-of-breed analytical capabilities and harnesses multiple large datasets to expose relevant trends and connections, forecasts future information campaign impacts for given scenarios or courses-of-action (COAs), and provides the user with confidence intervals and metrics to support forecasts.

BigBear.ai's VANE applies advanced IO and AI/ML methods to data and exposes predictive and prescriptive capabilities in a user-friendly UI, enabling non-technical analysts to gain decision advantage via a tensor completion methodology, time-series forecasting, impact analysis, and automated-ML for always updated insights within and beyond the IOE.

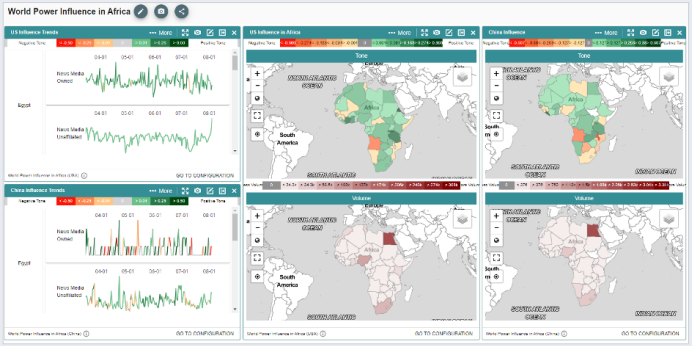
BlackForest is GTRI's information domain data analytics platform, providing analysts with high-level insights into a variety of information domain sources as well as drilldown, close inspection of individual data. Custom-tailored analytics, when applied to PAI and supplementary data sources, can aid in analysts' discovery and interpretation of network-based activity from nefarious to the benign.

Data collection across the platforms covers both geotagged and non geo-tagged social media and news media from across the globe. Social media outlets include Twitter, VK, Sina Weibo, Reddit, Telegram, Disqus, Blogger, Discord, and other surface websites.

Unstructured media data requires state of the art natural language processing (NLP) pipelines to extract meaningful metadata from the textual data and to incorporate into ML pipelines. The following capabilities are automated:

- Multi-language machine translation.
- Sentiment analysis to understand attitudes.
- Network analysis for understanding related people, places, organizations, actors, and concepts.
- Named Entity Recognition (NER) and key term extraction to identify top mentions.
- Concept extraction to understand themes and ideas.
- Affiliation nominations pipeline to automatically identify state-owned or earned actors and publishers.
- Geospatial analysis for message propagation across state-owned and unaffiliated cleavages in media data.
- Community detection via graph analysis to understand related actors in the social space.

Furthermore, users can apply AI/ML methods to understand future propagation and reaction from sponsored messages in the IO domain, understand how these actions in the IO domain can cause ripples across the other PMESII domains, and analyze COAs for information warfare via scenario forecasting.



Nemesis Roadmap:

- Automatic identification of organizations via integration of line analysis and AI-driven nominations service.
- Actor and organization level analysis.
- Bot detection via writing style analysis, posting irregularities, and pattern-of-life analysis.
- Track concept trends over time to understand propagation of messages between actors in the IO domain.
- Identify emerging storylines – what is newly being discussed or recently trending.
- Track how concepts evolve through these storylines to determine how rhetoric and story shift day-to-day.
- Forecast how a narrative will propagate and evolve.
- Achieve IL5 ATO (expected late 2022/early 2023 on cArmy).

The Nemesis contract is currently under development with an active stakeholder community with a wide variety of use cases. This program is transitioning from a research prototype into a program of record and has several options on the contract vehicle to further its capabilities.

For more information or a demo of the capability, please reach out to the points of contact below:

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