

QUANTAVERSE

2021 Data Science Summer Intern
Remote (based in Wayne, PA)

APPLICATION DEADLINE: Friday, February 26, 11:59PM EST

This is a Career & Civic Engagement Center Partner Internship. The selected student will participate in the Beyond Bryn Mawr Summer Internship Program.

Please apply by

- (1) submitting a one-page resume and cover letter through this [Handshake listing](#) and
- (2) completing the Center [Summer Funding Partners Application Form](#)

Background on QuantaVerse:

In the U.S., there are six million people addicted to illegal drugs generating \$100 billion in illicit cash flows. Globally, close to 20 million people have been trafficked, feeding a \$150 billion industry that is primarily fueled by victimizing underage girls. Trillions of dollars laundered through our banks support these activities as well as tax evasion, corruption, fraud and terrorism. No financial institution or corporation wants to be party to this. But they are. Despite spending billions of dollars on anti-money laundering (AML) systems and processes, the global banking industry continues to be plagued by financial crime.

QuantaVerse was founded to address the serious global problem of financial crime. Since 2014, QuantaVerse has been helping companies and financial institutions manage financial crime risks more effectively and affordably using powerful artificial intelligence (AI), machine learning, and data analytics tools. We put data to work—both structured and unstructured data from internal and external sources—serving up detailed, actionable insights that are flipping the tables on financial crime and the criminals behind it.

Artificial intelligence (AI) is transforming all aspects of the financial services industry. The technology has proven particularly effective in identifying financial crimes, expediting investigations, and recognizing criminals' evolving schemes faster than ever before. The QuantaVerse Financial Crime Analysis Platform brings advanced technologies together to enable our specialized solutions for identifying and evaluating financial crime.

1. AI and Machine Learning

Artificial intelligence is fully capable of enhancing human cognitive performance or even completely replacing people in the execution of non-routine tasks by enabling machines to emulate human intelligence processes. Our platform employs supervised machine learning that leverages decades of insights and expertise from financial crime investigators, law enforcement and regulators. We also use unsupervised machine learning techniques to assess risk relevant to financial transactions and their related entities.

At QuantaVerse, each AI models are accompanied by a confidence level, evidence, rationale for a regulatory violation, anomalies discovered, and, if required, the system can cite cases from which it learned and based its conclusions.

2. Neural Network

Our proven technology utilizes proprietary algorithms, or AI agents, to identify instances of financial crime. AI agents employ a variety of techniques such as fuzzy matching, graph traversal, criminality sentiment and more to generate observables indicating the risk potential of a transacting party in three areas:

- **Entity Reputation.** Detects instances of potential financial crime from structured and unstructured data to calculate an entity's reputation risk.
- **Transaction Monitoring.** Detects instances of potential financial crime from transactional data such as SWIFT messages or other data sources that show an exchange of value.
- **Intent.** Detects instances of potential financial crime from behavioral data derived from transaction history, company records, and other sources.

Risk segmentation and scoring is a tremendous cognitive challenge for compliance teams. Our trained deep neural network produces incredibly detailed and accurate criminal sentiment around entities based on potential financial crime risk. Through our decision engine, entities are marked as anomalous or non-anomalous and are given a mathematically-generated risk score and confidence level specific to clients' risk tolerance.

3. NLP & NLG

Natural Language Processing (NLP) is the ability of a computer to understand written text and derive intelligence that normally would require manual interpretation. QuantaVerse employs an NLP engine to analyze massive numbers of text-based documents from internal and external sources. The QuantaVerse NLP engine further distinguishes risk concerns by analyzing any combination of structured data sources such as travel and expense reports, contract language, proforma invoices, shipping documents and more.

In the field of adverse media, standard NLP algorithms can extract entity names from articles, but are unable to distinguish differences between types of entities. The QuantaVerse NLP is trained to infer criminal sentiment around entities, thereby differentiating between subject roles and relationships in Web text.

Conversely, Natural Language Generation (NLG) technology turns data into plain-language. QuantaVerse uses this technology to report on investigative findings just like a human investigator would. Critical information such as risk scores, negative news, sanctions data and financial crime typologies are automatically compiled in QuantaVerse Financial Crime Reports for investigators speedy review.

Internship Overview:

QuantaVerse is looking for one to two highly focused and motivated virtual interns for 8-12 weeks (30-40 hours/week) to help their NLP software engineers and data scientists improve anti-money laundering models and data sources. Data sources include company registries, sanction lists, politically exposed persons (PEP) records, DOJ press releases, and many more. These sources can be in English or other foreign languages; they can be available via open sources or hidden behind firewalls; finally, they can be in the open web or the dark web. The intern(s) will learn and develop strong data collection and data analysis skills, which will include research, search, filtering, parsing, and scraping of web data, while working in a professional and motivating environment.

About Leandro Loss, Lead Data Scientist:

As QuantaVerse lead data scientist, Leandro is responsible for designing and coordinating the development of data science algorithms and products that gather and analyze data in search of financial crimes such as money laundering.

Prior to joining QuantaVerse, Leandro worked at San Francisco based startup NodePrime Inc., where he used artificial intelligence and machine learning to optimize operational activities in large-scale data centers. Before that, he was part of the research team at Nokia, where he helped build map services. His innovative approaches to 3D city modeling and texturing granted him four patents while at Nokia. Since 2014, Leandro also has served as an adjunct professor of computer science at the International Technological University.

Leandro holds a PhD from the University of Nevada, where his doctoral thesis involved the development of computer vision and machine learning algorithms inspired by neurology and human psychology. His work resulted in five publications in distinguished journals and conferences in the field and granted him a research position at the renowned Lawrence Berkeley National Laboratory.

Learn more about QuantaVerse at <https://quantaverse.net/>