



IARPA HIATUS Program

Overview of Technical Capabilities

1790 Analytics LLC • 130 North Haddon Avenue, Haddonfield NJ 08033
Tel: 856-216-1790 • Email: ipevaluation@1790analytics.com • Web: www.1790analytics.com

1790 Analytics - Company Overview

- Background
 - Small company founded in 2004
 - Specializes in evaluation of science and technology documents (patents and scientific papers)
 - Looking for teaming opportunities on HIATUS program
- Resources
 - Maintains extensive databases designed for data mining
 - Founding partners elected to IAM250 – World's Leading IP Strategists
 - Quantitative backgrounds; expertise in data mining, machine learning, text analytics
 - 20+ published papers; several book chapters; 3 granted patents
 - Press coverage includes Business Week, IEEE Spectrum, USA Today
- Clients
 - Large Companies; Financial Institutions; Government Agencies

1790 Analytics – Example Current/Past Clients

- Government
 - IARPA (FUSE/ForeST)
 - U.S. Department of Defense
 - U.S. Patent & Trademark Office
 - U.S. Department of Energy
 - U.S. Department of Labor
 - National Institute of Standards and Technology
 - Small Business Administration
- Non-Profit
 - Institute of Electrical and Electronics Engineers (IEEE)
 - Center for Security and Emerging Technology (CSET)
 - National Center for Women & Information Technology (NCWIT)
 - SRI International
 - Massachusetts Institute of Technology (MIT)
- Corporate/Financial
 - Not shown for confidentiality reasons

Automated Author Identification

- There are a number of previous well-known attempts at automated author identification
 - NLP models used to identify Shakespeare's co-authors
 - <https://www.technologyreview.com/2019/11/22/131857/machine-learning-has-revealed-exactly-how-much-of-a-shakespeare-play-was-written-by-someone/>
 - NLP models used to clarify who wrote disputed Federalist papers
 - <http://pages.cs.wisc.edu/~gfung/federalist.pdf>
 - Text mining used to confirm that Ted Kaczynski was the author of the Unabomber manifesto
 - As discussed in the show 'Manhunt: Unabomber'
- 1790 Analytics has experience in related areas
 - Partner in 1790 has taught graduate-level courses (ML, Text Mining)
 - Company has carried out internal research into combining text and reference patterns to identify authors
 - Company has past projects in adjacent subjects (see next slide)

1790 Analytics - Relevant Experience

- **USPTO** – implemented automated classification of patents based on analysis of text in the patent application
- **IEEE** – designed multiple NLP models that build fuzzy matches between free-form references in patents to scientific papers
- **DTRA** – used text mining techniques to build topic models for clusters of papers in Semantic-Scholar, PLOS-One, and PubMed
- **IARPA/DOD/NIST** – built NLP models to generate topic phrases for emerging clusters of technology