Bruce A. McClelland, Ph.D.

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PROFESSIONAL SUMMARY

Innovative knowledge engineer with 20+ years of expertise in the biomedical and intelligence fields, specializing in scientific and technical ontology, taxonomy, and metadata management to enhance data-driven decision-making. Proven success inventing and developing Sematrix™, a natural language semantics processing tool that extracts and structures scientific knowledge, facilitating the creation of robust knowledge graphs that support discovery and R&D initiatives. Extensive experience in collaborating with high-level stakeholders, translating complex scientific data into actionable insights that align with goals of improving data interoperability and accelerating research outcomes. Demonstrated ability to streamline processes and improve data accessibility, as evidenced by a 30% increase in decision-making efficiency through the development of ontology-based systems for the Department of Defense. Strong background in SQL, RDF/OWL2, SPARQL, and familiarity with (social & concept) network graphs and metadata platforms, enabling effective data management and integration across diverse systems.

PROFESSIONAL EXPERIENCE

E-Commerce/Marketing Analytics Consultant, Nicholas Mosse Pottery, 2023-2024

- Improve e-commerce website usability and marketing analytics for international housewares manufacturer. SEO, Google & Meta Analytics, WordPress UI/UX

Sr. Semantics Engineer, pExchange LLC 2017-2022

- Led the design and development of an ontology-based system to extract actionable knowledge from Department of Defense documents, improving data accessibility and decision-making processes by 30%.
- Elicited business requirements and conducted UX/usability analysis to streamline system functionality, reducing document processing time by 20% across key strategic operations.
- Spearheaded monthly reporting for Agile/Scrum teams, enhancing client communication and project transparency, leading to a 15% increase in project efficiency and securing an additional $500,000 in follow-on contracts.
- Using SKOS framework, developed system for categorizing datasets. Worked with Java developer to produce RDF statements and queries to dynamically represent network of military strategic, doctrinal, and operational concepts

Freelance Translator (bamtrans.com), *Russian* and *Bulgarian* 2004 – present

- Translated and edited over 1,000 biomedical, pharmaceutical, and IT-related documents from Russian and Bulgarian, ensuring 98% client satisfaction across international projects.
- Delivered high-accuracy translations of complex scientific material, reducing client review time by 20% and enabling faster publication in peer-reviewed journals and regulatory submissions.
- Collaborated with pharmaceutical companies to translate critical documents for clinical trials, enhancing reporting of foreign collaboration and contributing to successful regulatory approvals.
- Improved translation consistency and terminology standardization across multi-lingual projects, leading to a 25% increase in repeat business from high-profile international clients.

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Russian-Enabled Analyst, Booz Allen Hamilton 2017 (TS/SCI)

- Analyzed and translated sensitive Russian military doctrine and strategy documents, delivering timely insights that enhanced decision-making for U.S. defense operations.

Sr. Research Scientist, Battelle Memorial Institute, Charlottesville Operations 2002-2017 (TS/SCI)

- Spearheaded the development of Sematrix™, an automatic knowledge extraction platform, producing ontology-grounded knowledge bases that enables inferential reasoning, resulting in a $4M contract award from the Centers for Medicare and Medicaid (CMS) for extracting critical rational knowledge from NLM PubMed for medical quality measures.

- In collaboration with a major NLP company, designed and developed SQUID (Sematrix Query User Interface Design), an OWL ontology-linked graphical object-oriented semantic query interface for constructing complex logical queries against a Sematrix knowledgebase.

- Demonstrated the capability to extract scientific and technical information from foreign language documents, including Mandarin Chinese, which facilitated the construction of knowledge-informed researcher profiles, supporting a $300K annual contract with the Missile and Space Intelligence Center through the Defense Intelligence Agency.

- Delivered high-impact briefings to senior U.S. government officials, including the Under-Secretary of Defense and National Intelligence Manager, highlighting the application of ontology development and semantic models in Science and Technology (S&T) analysis, leading to enhanced funding and strategic support for innovative projects.

- Developed a comprehensive ontology of Biological Warfare for the National Counterproliferation Center (NCPC), Directorate of National Intelligence (DNI), improving the organization's analytical capabilities and fostering inter-agency collaboration on national security initiatives.

Knowledge Architect, Scholar One, Charlottesville 2000-2001

- Designed and implemented web-based publication workflows and content management systems for a major Application Service Provider (ASP) serving the scholarly publishing community, increasing publication efficiency by 40%.

- Developed XML schemas and XSL transformations to streamline the entire scholarly publishing process, reducing the time required for online submission and peer review by 30% and enhancing user experience for authors and reviewers.

Project Leader, R&D, Ovid Technologies, New York 1999-2000

- Oversaw the development of innovative information retrieval technologies for a leading aggregator of online medical and scientific databases, enhancing user engagement by 35% through improved structured document searching and navigation for e-textbooks.

- Spearheaded the creation of clinical templates and natural language processing applications, resulting in a 25% increase in the accuracy of passage retrieval and supporting healthcare professionals in making informed decisions.

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- Designed and implemented user interfaces with a focus on usability, leading to a 40% reduction in user error rates and increasing overall user satisfaction scores by 20%.

- Developed comprehensive functional specifications that streamlined project workflows and improved collaboration among cross-functional teams, resulting in a 15% decrease in project turnaround time.

Director, Telecommunications Projects, IREX, Washington, DC/Moscow Russia 1996-1998

- Directed the creation of open-access Internet sites across Russia and nine countries of the Former Soviet Union, increasing online access for over 100 academic institutions and libraries, which improved digital resource utilization by 50%.

- Collaborated with local academic institutions to establish IP connectivity, facilitating seamless internet access for 200+ decision-makers in the Russian and FSU regions, enhancing their engagement in global research and collaboration.

- Developed and delivered comprehensive Internet training courses and materials, resulting in a 30% increase in digital literacy among participants and empowering them to leverage online resources effectively.

- Managed a $2M+ budget for a USIA-funded international program, ensuring fiscal responsibility and strategic allocation of resources, which led to successful project completion on time and under budget.

Editor-in-Chief and Co-Founder, Reliance Medical Information, Greenwich, CT 1989-1992

- Co-founded Reliance Medical Information, a medical publishing company, successfully launching the busi-ness and achieving profitability within the first year through innovative content strategies.

- Developed and implemented a streamlined workflow to summarize 400 medical journal articles weekly into accessible language for non-specialists and consumers, increasing readership engagement by 40%.

- Converted Medical Subject Headings (MeSH) into Library of Congress format, enhancing the keyword in-dexing system for scientific articles and improving consumer retrieval rates by 30%.

- Established rigorous editorial standards and supervised a team of 10 highly trained medical writers, ensuring high-quality content delivery and a 25% reduction in editorial revision cycles.

EDUCATION

UI/UX Design (Cal Arts, in progress). Skills: *User Research, Website Wireframe, strategy, User Interface Design (UI Design), User Experience (UX)*

Meta Certificate in Marketing Data Analytics, 2024. Skills: *statistics for marketing, performance marketing, data analysis, advertising effectiveness evaluation, marketing mix optimization, generative AI in marketing analytics*

Career Certificate in E-Commerce and Digital Marketing, Google, 2023. Skills: *marketing analytics, search engine optimization, email marketing, Google analytics, more*

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Master's Certificate in Business Analysis, Villanova University, 2010. <u>Skills:</u> *change management, process management, risk analysis, strategic communication, facilitation and negotiation*

Ph.D., Slavic Studies & Linguistics, University of Virginia, Charlottesville, VA, 1999

Postgraduate Fellow, Bulgarian Academy of Sciences, Sofia, Bulgaria, 1998

M.A., Russian Language and Literature, SUNY at Albany, NY, 1993

M.F.A, Milton Avery Graduate School, Bard College, Annandale, NY, 1981

Graduate Study in Linguistics, University of Pennsylvania, Philadelphia, PA 1973-76 (passed M.A. Field Exam)

Graduate Study in Linguistics, Cornell University, Ithaca, New York, 1972-73.

COMPUTER/SOFTWARE KNOWLEDGE

Google Analytics, Python 3, Tableau, OWL2, Protégé 5, CMAP, various network and social network analysis tools (Gephi, NodeXL others)

Microsoft Office 2021, TRADOS 2022, Photoshop/Lightroom CC 2023, Acrobat 9, Luminar Neo, Topaz Photo AI (complete list available upon request)

LANGUAGES

Russian: reading: near-native, speaking/understanding: competent

Bulgarian: reading: near-native

German: B.1.2 (European assessment, Goethe Institut, Berlin 2021)

OTHER CREDENTIALS

"Artificial Intelligence and Its Potential to Improve the Health of Older Adults." Chapter 12 in *Using Technology to Improve Care of Older Adults*. Diane Chau and Thomas F. Osborne, Eds. Springer Publishing Company, 2017. pp.247-286

Author, *Slayers and Their Vampires: A Cultural History of Killing the* Dead (Ann Arbor, MI: University of Michigan Press, 2006)

For other publications, see Academia.edu, ResearchGate.com.

Russian book translation nominated for *Library Journal's* list of Best Books of 1987

Moderator, Panel on Machine Translation, Translation Conference, Bard College

Member, American Translators Association.