Robert (Bob) E. Brown, PhD

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SUMMARY OF QUALIFICATIONS

Principal Computer Scientist with 25+ years of experience in government, commercial, and research domains. Extensive experience in big data analysis, strategic planning, and lifecycle management. A proven track record of successful large system deployments with diverse teams.

Detailed Qualifications Include:
- Big data mining and analysis, clustering, Hidden Markov Models, text search, image processing, and multivariate statistical methods.
- Tools: Python, Java, Java Script, R, Docker, AWS, Google Cloud, Eclipse, Git, Linux.
- Project Management: scope, cost, schedule, risk management, staffing, performance, status, and deliverables. PMP trained.
- Mission critical modernization process development, systems architecture, standards implementation, Software Development Life Cycle (SDLC), SCRUM, and data modeling.
- Strategic Planning, Organizational roadmaps, forecasting, and budget estimation.
- Large database systems: data strategy, data analysis, database design, and data migration.
- Lifecycle experience: end-to-end – conops, requirements, design, development, unit testing, V&V, engineering metrics, embedded analytics, migration and operational support.
- Systems: architecture, systems engineering, development and deployment; including systems with 10,000's of users.
- Supervisory Management: staffing, career coaching, organizational communication, and performance reviews.
- Experience with FAR process; Level 3 Contract Office Representative (COR) and PMP trained.
- Strong written and verbal communication skills.

DETAILED EXPERIENCE

Bioinformatics Scientist   **2014-Present**
InSilico Corporation Vienna, VA.

- MD Anderson Cancer Research Center subcontract manager of the Reverse Protein Phase Array (RPPA) Pipeline for External Customer sample processing and protein analysis.
- Responsible for architecture, performance, standards and policies related to the system. Worked closely with the Principal Investigator, the RPPA Users, developers, and system administrators.
- Led implementation, deployment, reviews, testing, and operational support and customer interface for RPPA, end-to-end project management, user and program requirements through operations.
- Designed, programmed, and deployed the multi-components system in Java, Java Script, Python, R, using Docker VM and AWS Cloud-based environments.
- Developer of multiple NIH The Cancer Genome Atlas (TCGA) Big Data analysis tools and visualizations, based on Google's Big Query toolset for analysis of the TCGA Cancer data repository.
- Performed manuscript writing and proposal development
- Risk and Configuration management

Research Scientist and Adjunct Professor   **2013-Present**

College of Science, George Mason University (GMU), Fairfax, VA.

- Informatics Coordinator for the Microbiome Analysis Center (MBAC) at GMU.
- Significant contributor to multiple MBAC microbiome and metabolite scientific research efforts using our MBAC big data platform.
- Designed multiple analysis tools to model microbiome network behaviors.
- Currently in the third year of teaching the courses as an Adjunct Professor, with increasing student enrollment year-over-year. Each course contains computer-based lab work incorporating R, MySQL, Python, Galaxy, and key bioinformatic tools as part of the curriculum.
- Key member for the Biology Department Strategy Committee responsible for defining the new undergraduate Bioinformatics Concentration.
- Developed course materials for two new courses at GMU as part of the new Bioinformatics concentration.

Policy and Task Order Manager   *2009-2013*
Office of Policy and Governance, U.S. Patent and Trademark Office (USPTO), Alexandria, VA.

- Program Manager whom oversaw the CIO-wide OMB required Cyber Security Certification and Accreditation (C&A) activities. Led the establishment of the processes for periodic review and update of systems. Monitored compliance with the program objectives.
- Successfully implemented the CIO-wide OMB/NIST required C&A activity that mitigated risk on all 140+ USPTO information systems. Was instrumental in developing a process that became a model for other U.S. Civilian Agencies. Results in C&A program meeting all criteria, and that information systems mitigated security vulnerabilities.
- Responsible for defining and implementing sound performance practices, standards, policies and best practices for the USPTO, that covered the entire SDLC.
- Key member in incorporating the Agile development (SCRUM) process to the USPTO and a SCRUM Master.
- Certified Level 3 Contract Officer Representative (Contracts greater than $10M).
- Technical lead on the USPTO Small Business Development Proposal review and award selection.
- Manager for IT Security-related tasking of Contractors.

Project Manager, Branch Chief, & Senior Engineer   **1998-2008**
Software Development Division, U.S. Patent and Trademark Office(USPTO), Alexandria, VA.

- Branch Chief with 10 staff, and Project Manager with over 20 Contractors and $10M/year funding.
- Project Manager for the very successful PALM Y2K system migration after other failed attempts.
- The PALM Y2K migration required the switch-over of the live application involving a very large-scale architectural change, runtime platform upgrades, a massive data source migration from an archaic hieratical to state-of-the-art relational structure, including performance enhancements.
- The Pre-Exam data migration created, at the time, the World's largest Oracle Database at 3,000 Terabytes. We successfully migrated 10,000 internal users to the paperless Patent review process that greatly improved operational efficiency, management visibility, and cost monitoring.
- Pre-Exam conops -- performed Business Processing Reengineering (BPR), and Cost Benefit Analysis. Created models to gather, analyze, and interpret complex data to support the deployment.
- Dr. Brown led the Pre-Exam implementation team from design to deployment and operational support.
- Headed the CIO I/T Service Oriented Architecture (SOA) Working Group.

- SW Division representative in the Software Engineering Process Group (SEPG) responsible for the Software Life Cycle Management and the Capability Maturity Model Integrated (CMMI).
- Dr. Brown led the development of the Configuration Management (CM) system that included the migration of 140+ poorly managed PTO applications into a state-of-the-art repository that is able to ensure full disaster recovery of the application infrastructure.
- Incorporated into the above CM system, portfolio monitoring of project's performance compliance data as part of the software development cycle to reduce the performance risk.
- Defined a CM Basis Of Estimate (BOE) capture capability for estimating future development cost and schedule based on both language and vendor specific historical data.

Project Manager   1994-1996
SAIC, Fairfax, VA.

- Project Manager and Task Order Manager (TOM) for a 10 FTEs team on a Defense Information Systems Agency (DISA) Government Site. Responsibilities included technical leadership, deliverable management, risk mitigation, WBS creation, cost execution, project scheduling, and staff career planning.
- Led the migration team for the DoD-wide Standardized Data Dictionary from a paper-based system to an online Subject Area-based Entity Relationship Diagram (ERD) model with full metadata.
- Increased the new DoD Standardized Data Dictionary system 10-fold to over 10,000 Data Elements in 2 years, with quarterly releases and full traceability to support the Entire DOD. We received a commendation for our system.

Operations Manager, Software Development Lead and Engineer   1989-1994
Hughes Aircraft Company. El Segundo, CA and Washington, D.C.

- Software Maintenance Manager, leading an on-site team of 25 staff including Subcontractors and Government personnel for the Operations and Maintenance (O&M) phase of an extremely large classified image processing system.
- Key onsite Contractor Technical manager for the Hughes-developed system greatly expanding the analysist's ability to review reams of data at a SCI level.
- Implemented Geo-spatial retrieval software, text search algorithms and real-time image processing software, and devised techniques and procedures to perform large database migrations in a classified realm.
- Under DISA Enterprise Architecture group Dr. Brown was the key architect of DOD initiative to replace and reduce the number of As-Is IT systems with standard functional To-Be system. Developed a Roadmap and implemented annual, multi-year, and long-range work plans to ensure organizational goals and performance objectives were addressed.

EDUCATION

Bioinformatics and Computational Biology, PhD
George Mason University, Fairfax, VA.

Master of Science, Computer Sciences
The University Southern California, Los Angeles, CA.

Bachelor of General Studies, Chemistry and Biology
The University of Michigan, Ann Arbor, MI.

SELECT PUBLICATIONS

1. Ryan M, Wong WC, Brown R, Akbani R, Su X, Broom B, et al. TCGA Splice Seq a compendium of alternative mRNA splicing in cancer. Nucleic Acids Res. 2016;44(D1):D1018-22. doi: 10.1093/nar/gkv1288. PubMed PMID: 26602693; PubMed Central PMCID: PMCPMC4702910.
2. Brown, R.E., et al., *Quorum-sensing dysbiotic shifts in the HIV-infected oral metabiome.* PLoS One, 2015. **10**(4): p. e0123880.
3. Mukherjee PK, Chandra J, Retuerto M, Sikaroodi M, Brown RE, et al. (2014) Oral Mycobiome Analysis of HIV-Infected Patients: Identification of Pichia as an Antagonist of Opportunistic Fungi. PLoS Pathog 10(3): e1003996. doi:10.1371/journal.ppat.1003996
4. Ghannoum MA, Mukherjee PK, Jurevic RJ, Retuerto M, Brown RE, Sikaroodi M, Webster-Cyriaque J, Gillevet PM. (2011). Metabolomics Reveals Differential Levels of Oral Metabolites in HIV-Infected Patients: Toward Novel Diagnostic Targets, OMICS. 2011 Jul 13 ePub, PMID:21751871
5. Brown, RE (2011). Systems Modeling of the Oral Metabiome, GMU Dissertation.
6. Brown, B. (2006). Service Oriented Architecture, Federal Computer Week, 2006