RAMESH BABU MANYAM Email: rmanyam@emory.edu

EDUCATION

- PhD in Computer Science with **Honors**, Georgia State University, Atlanta, USA 2019
- MS in Computer Science, Georgia State University, Atlanta, USA 2002
- MTech in Electronics Engg. Indian Institute of Technology, Varanasi, India 1993
- BTech in Electronics and Communication Engg. National Institute of Technology, Warangal 1991

WORK HISTORY

- Over 25 years of experience in progressively responsible positions that includes: teaching and mentoring undergraduate and graduate students in areas such as, biostatistics, data science, data analytics, database systems, and programming languages; and managing teams and projects in information technology solutions and services in research and academic institutes and public sectors, in the fields of data analytics, database systems, data warehousing, business intelligence, software application development, IT systems admin support at the enterprise level.
  - Six+ years of research, teaching, and mentoring experience: taught graduate and undergraduate-level courses, for example, database development for public health. python programming, databases, data science and analytics, algorithms, and machine learning; mentored graduate as well as undergrad students at Emory, Univ. of North Georgia, Georgia State University, and University of Tennessee; and provided on-the-job training, lectures, presentations, seminars, and workshops in the fields of database administration services, information technology solutions to junior programmers, database developers, business analysts and data analysts.
  - Six plus years of hands-on experience in database development and administration, business intelligence and data warehousing; data collection, cleaning, analysis, consolidation and report generation; software application development, IT infrastructure and network systems support Georgia State, Kennesaw State, Emory Universities and Sun Trust bank.
  - Seven years of full life cycle development software applications such as: planning, design, development, implementation, maintenance and end-user support; business requirements collection, analysis and project management experience at Enterprise level (at the department of transportation, state of Georgia)
  - Seven years of qualitative research, software engg., programming, databases, and project management experience at the Defence Research and Development Organization (DRDO), India.

HONORS/CERTIFICATES

- 1st place Mike Kutner Faculty Poster Award Winner and Travel Award Recipient at the Southern Regional Council on Statistics (SRCOS) Summer Research Conference 2024
- Dean's Pilot Innovation Award, Rollins School Public Health, Emory University 2023
- Biostatistics and Bioinformatics Faculty Mentor Award, Emory University 2022
- Biostatistics and Bioinformatics Distinguished Teaching Award, Emory University 2021
- Outstanding Graduate Student Award, Department of Computer Science, GSU 2020
- 2nd Prize and Travel Award winner at Three Minute Thesis (3 MT) Competition at GSU 2019

- Travel Award for the 2nd Machine Learning in Science and Engineering Symposium 2019
- Featured on GSU Computer Science department, Provost and graduate school news events online, and GSU Merit pages in appreciation of research accomplishments 2019
- Travel Grant Award at Machine Learning for Health (ML4H) Workshop at NeurIPS 2018
- Microsoft Certified Tech. Specialist, MS SQL Server DBA implementation & maintenance 2010
- Oracle Database 10g Administrator Certified Associate 2009
- Oracle Certified Database SQL Expert 2009
- State of Georgia Governor Certified 'Faithful Service Award' 2008
- Microsoft Certified Technology Specialist, .NET Framework 2.0 Web Applications 2007
- Sun Certified Programmer for the J2EE Java 2 Platform 1.4 2004
- State of Georgia Merit System Certified 'Programmer' 2003

TRAINING

- LabKey, RedCap and Open Specimen - Clinical research data management workflow and software solutions with interactive web portals, user-interfaces, and data management tools and techniques@ Emory, Atlanta, 2018.
- Oracle Golden Gate 12c: Real Time access to Real-Time information @Emory, 2017
- HIPAA privacy, security and research modules and CITI training, Emory, 2016
- Micro Strategy V 10.3 - Enterprise Business Intelligence and Reporting S/W suite @ Emory, 2016.
- Amazon Web Services Immersion Day @Emory University, Atlanta November 2016: With AWS, scientists can quickly analyze massive data pipelines, store petabytes of data and share their results with collaborators around the world, focusing on science not servers. AWS helps researchers process complex workloads by providing cost-effective, scalable and secure compute, storage and database capabilities needed to accelerate time-to-science.
- SAS Business Intelligence (BI) Suite 9.2 and 9.3: SAS Management Console(SMC); Data Integration (DI) Studio, OLAP Cube Studio, Information Map Studio and SAS Enterprise Guide, Web Report Studio and Analytics tools, SAS Platform Administration: 2011- 2012.
- PMI Training Programs through Georgia Merit System: Time Challenges and Solutions; 7 Habits of Highly Effective People; Project Planning and Development Process; Project Mgmt. and Supervisory skills sessions (2003-2007); Project management, leadership and conflict mgmt. training - Kennesaw State Univ. - 2011.
- Database Courses: Oracle DB SQL, PL/SQL Fundamentals I & II, Oracle data modeling and relational DB design; Oracle 10g Administration I; MS SQL Server 2005 Implementation and Maintenance.
- Microsoft Certified courses: .NET 2.0 Web Applications Development; Web Application Technologies (using C# and ASP.NET) with MS Visual Studio 2005; SharePoint Server 2007;
- SUN Certified Courses: Object-Oriented Analysis and Design using UML; Java Programming Language Workshop; Web Component Development with Servlet & JSP; Developing Applications for the J2EE Platform.

SKILL SET

Business Intelligence tools: Micro Strategy, SAS BI Suite (DI Studio, OLAP Cube studio, SMC, Enterprise Guide, Enterprise Miner, Tableau, Business Objects, Hyperion, Hadoop, Cognos, Crystal reports

Databases:	Oracle 9i/10g/11g/12c, MySQL, PostgreSQL, MS SQL Server 200X/201X, PeopleSoft Financials, MS Access, OpenSpecimen, RedCap, LabKey etc.
Languages/Scripts:	Python, Java, C/C#, Cold Fusion, PHP, VB Script, JavaScript, Perl, PL/SQL
Web Development Tools:	DreamWeaver MX, HTML, DHTML, XHTML, AJAX, CSS, XML, XSLT, UML, REST, Drupal, ASP.NET, Web Services, JSP, .NET and J2EE Tools.
Operating Systems:	MS Windows 9X/200X/XP/NT/Vista/10, MS DOS, HP-UX, RedHat Linux, Centos, Ubuntu, MS SharePoint 2007/2010.
Application Servers:	Cold Fusion MX, Apache, Tomcat, JRun, SharePoint, Django/Rail/Zend
Other Tools:	LDAP, Active Directory, Remedy, Crystal Reports, TCP/IP, VMware, VPN, MS Exchange, Toad, SQL developer, SQL plus, SQL Server Mgmt Studio, Visual Studio, Adobe, MS Office Products, SAS, SPSS, SOAP, Web Reports.

SYNOPSIS OF EXPERIENCE

Emory University, Rollins School of Public Health: Research Assistant Professor, May 2022 - current

[Prior roles: Adjunct Faculty, Data Scientist, Sr**.,** Sept 2016 - April 2022]

- Teaching two newly developed courses: 'BIOS 585: Python Programming', and 'DATA 521: Database Development for Public Health' to graduate students in public health.
- Mentoring graduate and pre-doctoral students in capstone and thesis projects, research and teaching assignments (mentored about 20 students till Spring 2024).
- Research focuses on data science, big data analytics, database management and risk prediction frameworks using machine learning algorithms and high-performance computing environments.
- Service activities include contributions to department and school-wide committees, and national and international scientific conferences and associations (e.g., IEEE International Conference on Bioinformatics and Biomedicine, American Medical Informatics Association)
- Have worked on grant-funded research studies such as: i) Institutional biobank for CURE COVID-19 biospecimens and metadata prospective cohort; ii) The Children's Health Exposure Analysis Resource, or CHEAR, a program funded by the National Institute of Environmental Health Sciences to advance understanding about how the environment impacts children's health and development; iii) The Emory Health and Exposome Research Center: Understanding Lifetime Exposures (HERCULES), an exposome project funded by the National Institute of Environmental Health Sciences. iv) Projects at the Center for Children's Health, the Environment, the Microbiome, and Metabolomics (C-CHEM2) that conduct research to understand the complex interactions among components of the prenatal and postnatal environment - toxicant exposures, the microbiome, and the metabolome - and their impacts on birth outcomes and infant health and neurodevelopment. and v) Real Time Healthcare Clinical Data Analytics project, that deals with real-time replication and processing of the CERNER's EMR (Electronic Medical Records) Millennium DB, using Oracle Golden Gate 12c data integration tool and Exadata platforms [this was a prior project I worked with].

  Overall Responsibilities include:
- Provided technical consultation and expertise on design and development of interactive web user interfaces, software apps, workflow solutions and services.
- Interacted with Emory's School of Public Health and School of Medicine's executive management, department chairs, faculty, researchers and providing state-of-the-art data solutions and services; Mentor Emory and GaTech biomedical engineering students on research projects related to health Informatics and data analytics.

- Led and guided application development support team and mentor junior developers, data analysts, researchers, graduate students, and postdocs through the design processes of interactive web user interfaces, web-portals, dashboards, common data models, development of SQL scripts for loading data, collection of metadata for data dictionary, and configuration of data level security for access by authorized users.
- Managed data modeling and database design support for data sets drawn from heterogeneous data sources; guide thru design of data collection, consolidation, and customization processes into a central DW repository and develop data integration jobs and data sharing methodologies using Clinical data management tools such as: Lab Key, RedCap, Open Specimen and Cloud database services through Amazon Web services Relational Data Store (AWS RDS).

Georgia State University, Atlatna, GA: Graduate Research/Teaching Assistant, 2018-2019 [and in 2013-14, 2007-9, 2001-2002]

- Assisted professors with supplemental instruction in Artificial Intelligence, Machine Learning, Parallel and Distributed Computing, and Algorithms courses; mentored students and evaluated programming assignments, tests, and projects [in 2018-2019].
- Introductory computer science courses/sections such as Computers and Applications, Principles of Computer Science, Programming Languages, Database Systems and assisted professors in evaluation of assignments, projects and tests [2013-14, 2007-9].

University of North Georgia, Mike Cottrell College of Business, Dahlonega, GA: Adjunct Faculty in Computer Science and Information Systems, August - December 2017

- Taught undergraduate courses Computer Science I, Relations Database Systems, Software Application Development courses, and mentored students in Fall semester, 2017.

University of Tennessee at Knoxville, TN: Asc. Director [Data Architect, Sr.] November 2015 - September 2016 [Contract]

- For a research grant project on '**Tennessee's Longitudinal Data System**' - provided consulting support for data sets drawn from various data sources, such as: Tennessee Higher Education Commission (TNHEC- Students postsecondary data), TN DOE (K12 students datasets), TN DOL (Labor and Workforce development data sets); guide thru design of data collection, consolidation, and customization processes in a central DW repository and develop ETL jobs through SQL Server Integration Services (SSIS) in MS SQL Server.
- Interacted extensively with state-level software developers, programmers, data analysts, researchers, and provided state-of-the-art data solutions and services.
- Led support team of four junior developers for the design of web-apps, data-integration models, implementation of UIs, transformation logic for loading data, collection of metadata for data dictionary, and configuration of data level security for access by authorized users.
- Provided technical specifications/recommendations for design, development, and security of the web portals, dashboards, data warehouse guided by established policies and protocols.

SunTrust bank, Atlanta, GA: Asst. Vice President [Data Architect] March 2014 - October 2015 [Contract]

- Technical Lead with design and development efforts for user-friendly web-portals, dashboards, data marts for **Fraud and Research Analytics** group. Responsibilities include: extracting data from multiple data sources, such as IBM DB2 BI Appliance, Oracle account management database, SQL

server and SharePoint environments; collect data needs, design and augment current databases; integrate application user interfaces with databases.

- Managed migrations and upgrades of outdated databases (Access DB files into MS SQL Server 2012 and earlier version Oracle DBs to Oracle 11gR2 and 12c); Create SQL Server Integration Services (SSIS) load jobs to extract, transform, consolidate data from various external data sources; Managed the consolidation, staging/archiving, and distribution of data to reporting portals.
- Managed implementation of latest patch upgrades, and provide System Admin support for MS SQL Server 2012 and Windows 2012 systems. Establish RAC cluster environment for fail-overs;
- Supervised/trained a team of six members consisting of DBA, BI developers, and report analysts.

Kennesaw State Univ., Kennesaw, GA: Data Warehouse Manager, Jan 2011 - Feb 2014

- Trained and mentored IT staff and student assistants (8) on all aspects of BI software tools, data collection, cleansing, consolidation and report generation for statistical research purposes.
- Worked as Data Manager & IT Systems Architect for a research grant project, **Teacher Quality Partnership** (TQP) at KSU; and then, as Data Warehouse Manager/DBA and SAS Business Intelligence (BI)and Data Integration (DI) Coordinator at the Office of Institutional Research and Center for Institutional Effectiveness (Enterprise Information Management division); and my responsibilities included:
  - As Data Warehouse Manager and Business Intelligence Architect - manage BI metadata and its use in reporting and analytics utilizing the SAS Business Intelligence Platform.
  - Served as the metadata administrator for KSU's Data Warehouse, data marts, and transactional databases such as Banner and PeopleSoft/Oracle.
  - Managed and supported activities of IT infrastructure and System Administration of Windows/Linux OS server environments, virtual network and storage support.
  - Installed and upgraded databases, application software and other software related to database management system administration.
  - Created, configured and modified database objects, storage parameters, database parameters.
  - Monitored and administered database management system security including adding and removing users, administering quotas and detection and resolution of security issues.
  - Implement database backup and recovery processes.
  - Troubleshoot database problems and implement corrective measures as required.
  - Migrated database objects and programs from one environment to another.
  - Monitored database error logs to ensure proper capacity & availability; execute database software installations, database creations/configurations and loads; monitor performance and tuning of primary and backup systems and apply oracle patches at regular intervals.
  - Designed and developed user-friendly functional data marts such as faculty data mart, human resources, and financial, academic, student data marts and facilitated data management functions of SAS to deliver decision-support information to KSU departments.
  - Designed, managed, and supported current ETL loads, such as Academic Staging, HR Staging, and Financial Staging loads derived from various data sources such as, from PeopleSoft Financials, ADP, and SunGard Banner Information systems.
  - Modified and maintained existing extract, transform, and load (ETL) routines as well as assisted in analysis of new requirements and enhancements of new routines and queries.
  - Designed cubes, information maps and create and manage interactive web-based reports such as: Budget Prep, Accounts Receivable, Comprehensive Financial Revenue, Expenses,

Pre-encumbrances, Payroll Services reports, P-Card, Budget Journals, Grants, e-procurement purchasing reports - for various offices and academic departments, query functions, drill down/drill through cube features and automated dashboard analytics.

- Created, and supported DI (Data Integration) job loads and schedules; added new tasks to the existing DI jobs and/or created new DI jobs as and when needed.
- gained working knowledge with clinical research and laboratory research data sets pertaining to School of Nursing, Public health sciences; provide technical direction and consultation to produce accurate unit-level and program-level information and analysis for program accreditation reporting and ad hoc report needs.
- As TQP IT Systems Architect - worked with relevant faculty and staff to identify, collect and analyze business requirements.
- Acted as an IT lead and liaison between KSU faculty and Cobb County School District teachers.
- Designed and implemented software web application functionalities for student, parent, teacher-based survey forms and related modules.
- Designed survey questionnaires and assisted with statistical qualitative and quantitative measures - including predictive analytics modeling, sampling, forecasts and projections, covariance and correlation analysis etc.
- Collected data needs, designed and implemented database; integrated application user interfaces with back-end databases. Created and maintained data dictionary and metadata;
- Created and maintained project documentation.

GA Dept. of Transportation, Atlanta: IT Analyst [Sr. Programmer/Database Analyst] 2003 - 2010

- Interacted with all levels of state personnel in a way that promotes respect, encourages cooperation and contributes to excellent performance. Maintained a professional, customer-focused outlook while leading teams that provide IT solutions and services to internal and external customers.
- Mentored junior programmers/database developers and presented workshops, demos and training classes on the state-of-the-art databases, programming tools, techniques and development standards.
- Associated with full-lifecycle development of software applications - leading from the front in the areas of project management, requirements collection and analysis; strategic planning, budgetary planning and analysis, infrastructure systems design and support, coding, testing, implementation and production support; database design, development and administration of intra-departmental IT Systems, projects and web applications such as:
  - **Data Dictionary**- an online metadata repository application used to upload, retrieve and manage enterprise databases metadata; search database objects (columns, tables, views etc) in the enterprise-wide databases and view descriptions; generate various reports such as valid values report, constraints report etc.; administer functionalities such as adding application schemas, DB server instances, and uploading descriptions/definitions of data elements.
  - **Georgia Utility Permitting System (GUPS)** - an online utility permitting portal for Ga. utility companies that provide permitting services such as creating member group accounts, applying for utility permits, tracking approval process, managing the user accounts
  - **Outdoor Advertising Sign Information System(OASIS)** - for processing outdoor advertising sign permits for private companies/individuals along the Interstate and GDOT Highways

- **Office of equipment management Requisition Database for Equipment Requests (ORDER)** - maintains and manages GDOT equipment requests and budgets by Districts, the receipt and issues of state fleet, supplements the Fleet Anywhere database and inventory application.
- **Database for Repairs Involving Vehicles/Equipment (DRIVE)** - used to process repair requests, vendor bidding approvals, and to manage the vehicle database.
- Office of Equipment Management(OEM) Automation - Motor Vehicle Usage(MVU) and Motor Vehicle Assignment(MVA) applications - used to track, manage, and report the assignment and usage of motor vehicles to GDOT employees and maintain the vehicle inventory.
- All applications are being implemented in Adobe/Macromedia ColdFusion MX (6/7/8) and Dream Weaver MX Environment, C/C++/Java using tools such as .NET, J2EE, JRUN, SharePoint, Oracle and SQL Server DBs.

- Analyzed customers' information needs, business problems and opportunities to determine the most efficient and effective database systems/programming solutions; Designed data models and created database objects and associated with full life-cycle development of software systems.
- Evaluated, updated and/or altered existing databases and applications either to meet the customer's current business requirements or to correct existing or potential problems. Debug and test new or modified programs.
- Performed database administration tasks such as configuration of oracle servers, creation of database schema objects, roles, and users; backup and recovery operations, tuning and performance monitoring tasks; database design and data modeling activities.
- Provided training and operational guidance to customers, technical support personnel in the operation and use of application software systems. Assisted customers in resolving complex technical issues and concerns.

Georgia State University (GSU), Atlanta: Graduate Teaching/Research Assistant 2001-2002

- Tutored and assisted undergrad math students in College Algebra, Precalculus, Trigonometry, Calculus, Numerical analysis, and Discrete mathematics. Provided software application and database systems support; Responsible for department website, database maintenance; hardware and software set up and installations; resolving faculty and staff personal computer issues; assisting system admin with the Banner and LAN operations.

Defence Electronics Research Laboratory (DLRL), Hyderabad, India: Research Scientist [Level C and B] 1993 - 2000
Software Application and database development

- Associated with the full-life cycle development of subsystems. analysis, design, simulation, development and production of microwave and radio frequency signal generators, such as digitally tuned oscillators (DTOs) for use in electronic counter measure (ECM) applications.
- Taught staff and trainees programming languages, database concepts, web development technologies, and Microsoft Office products such as Word, PowerPoint, Excel.
- Analyzed and solved coding issues; Diagnosed and resolved subsystems operational problems; Troubleshoot complex programming problems, modify existing code and applications; Applied debugging techniques; Performed quality assurance activities. Trained technical staff with computer aided design (CAD) tools and programming workshops.

Research contributions:
The following list provides contributions of my research work such as papers presented and/or published at scientific conferences and peer-reviewed journals recently. More information on research areas/ projects is available at faculty profile page here:
https://sph.emory.edu/faculty/profile/index.php?FID=rameshbabu-manyam-13032

Manyam R, Shen H, Liu Z, Zhang Y, Hu XB, Keeling WB. Machine Learning Algorithms Accurately Predict Risk Factors for Failure to Rescue After Coronary Artery Bypass Grafting. In Review: The Annals of Thoracic Surgery. Forthcoming.

Gupta P, Lou P, Guo R, Heinz E, Manyam R. Predicting Blood Transfusions After Surgery for Femoral Shaft Fractures Using Artificial Intelligence. In Review: Journal of Clinical Anesthesia. Forthcoming.

Dinga JN, Ayah F, Anu F, Qin H, Gamua SD, Tufon AK, Amougou ME, Manyam R. IgG4 and serum inflammatory biomarkers levels and their association with Malaria Infection in Children in Buea Health District, Cameroon. In Review: Tropical Medicine and Infectious Disease. Forthcoming.

Gupta P, Shen H, Patel K, Guo R, Heinz ER, Manyam R. Using Artificial Intelligence to Predict 30-day Mortality After Surgery for Femoral Shaft Fractures. In review: Indian Journal of Anesthesia. Forthcoming.

Manyam R, Melese M, Zhang Y, Hu X, Keeling WB. Machine Learning to Predict 30-day Readmission after Coronary Artery Bypass Grafting: Ready for Prime Time? 71st Annual Meeting of the Southern Thoracic Surgical Association, 2024 Nov 7; Austin, TX, USA, c2024.

Manyam R, Liu Z, Shen H, Zhang Y, Hu X, Keeling WB. Ensemble Learning Model with Effective Feature Selection For Accurately Predicting Failure to Rescue After Coronary Artery Bypass Grafting. The Southern Regional Council on Statistics Summer Research Conference; 2024 June 3; Clemson, SC, USA. c2024.

Manyam R, Shen H, Liu Z, Zhang Y, Hu XB, Keeling WB. Machine Learning Algorithms Accurately Predict Risk Factors for Failure to Rescue After Coronary Artery Bypass Grafting. 60th Annual Meeting of the Society of Thoracic Surgeons; 2024 January 27; San Antonio, TX, USA. c2024.

Manyam R, Zhang Y, Binongo J, Rosenblum JM, Keeling WB. Unraveling the impact of time-dependent perioperative variables on 30-day readmission after coronary artery bypass surgery. *J Thorac Cardiovasc Surg.* 2022 Sep;164(3):943-955.e7. doi: 10.1016/j.jtcvs.2020.09.076. Epub 2020 Sep 29.

Manyam R, Zhang, Y, Binongo J, Rosenblum JM, Keeling, W B. A Simple, Scalable And Portable Machine Learning Model With Effective Feature Selection For Accurately Predicting 30-day Readmission After Discharge Following CABG. Paper accepted at: *100th Annual Meeting of the Association of American Thoracic Surgeons*; May 22-23, 2020; Virtual; New York, NY, USA.

Manyam R. *A New Scalable, Portable and Memory-efficient Predictive Analytics Framework for Predicting Time-to-event Outcomes in Healthcare* [dissertation]. Atlanta, GA: Georgia State University; 2019.

Manyam R, Zhang Y, Binongo J, Rosenblum JM, Keeling, WB. Unraveling the impact of time-dependent

perioperative variables on 30-day readmission following CABG. Paper presented at: *45th Annual Meeting of Western Thoracic and Surgical Association;* June 26-29, 2019; Olympic Valley, CA, USA. Available at: https://meetings.westernthoracic.org/abstracts/2019/CF6.cgi

Manyam R, Zhang Y, Binongo J, Rosenblum JM, Keeling WB. A New Scalable, Portable Predictive Analytics Framework for Predicting Time-to-event Outcomes in Healthcare. Paper presented at: 2nd *Symposium on Machine Learning in Science and Engineering Symposium;* June 9-12, 2019; Atlanta, GA, USA.

Manyam R, Zhang Y, Keeling WB, Binongo J, Kayatta, M, Carter, S. Deep Learning Approach for Predicting 30 Day Readmissions after Coronary Artery Bypass Graft Surgery. Paper presented at: Workshop on Machine Learning for Health, *Thirty-second Conference on Neural Information Processing Systems (NeurIPS, 2018); December 8, 2018*, Montreal, Canada. Available at: *arXiv preprint arXiv:1812.00596*.