Sulochana Deshmukh, PhD Contact: + 1(336)-709-8489 Email:deshs0980@gmail.com LinkedIn: <https://www.linkedin.com/in/sulochana-deshmukh>Place: Albany, New York 12203

PROFILE SUMMARY

* Ph.D. in Computational Data Science and Engineering, NC A&T State University, USA
* Total 14 years of experience: Research - 4 years | Industry – 2.5 years | Academic experience - 8 years.
* 4.5 years of hands-on experience in building AI/ML models specialized Data Science and in NLP.
* IEEE Senior Member, Member of IEEE Computer Society (CS) and Women in Engineering (WIE).

TECHNICAL SKILLSET

* Artificial Intelligence, Statistics, Data Science, Data Analytics, Natural Language Processing
* AI/Machine Learning algorithms: Linear Regression, Logistic Regression, Random Forest, Decision Tree, Artificial Neural Network (ANN), Bagging, Boosting etc.
* Hyperparameter Tuning using Gridsearchcv and Randomized searchcv etc.
* Python, Scikit-Learn, Pandas, NumPy, Scipy, Matplotlib, Seaborn, Regular Expressions, NLTK, MySQL, SQLite3 etc.
* Platform: Eclipse, PyCharm, Spider, Jupyter
* Project Management and version controlling tools: GitLab, GitHub, Atlassian, Jira ▪ Scientific Writing: Latex
* Matlab, Mathematica, Java, C++, C, OpenMP, Assembly Language

EDUCATION

Ph.D. Computational Data Science and Engineering, North Carolina A&T State University July 2021 (GPA: 3.87)

M.E. Computer Engineering, Pune University, India Nov 2015 (GPA: 3.14) B.E. Computer Science & Engineering, Aurangabad University, India July 2006 (GPA: 3.76)

PROFESSIONAL EXPERIENCE

# SLK America Inc, Cincinnati, OH September 2021- present Client: M&T Bank - Onsite Technical Lead – Software

AIPOD – Predictive model for document Labeled Information Extraction and Validation - Banking and Financial Services ▪ Software Architect AI/ML model solution to provide high-level design choices and recommendations.

* Applied technical knowledge to architect and design solutions that meet business and IT needs.
* Create AI roadmap, drive proof of concept (POC), and ensure long term technical viability of new deployments.
* Plan and lead POC in support of new technology and new design approaches.
* Provided in-house, secure and cost-effective AI/ML solution to confidential bank document related problem.
* Drive buy vs build decisions based on reviewing products and capabilities within the enterprise as well as the leading products and technologies in the industry- Azure Form Recognizer.
* Built AI/ML predictive model to predict the label for the extracted information/named entity from bank documents and validation of the information and label in the system.
* Predicting custom labels for Named Entities in the document using CRF, RoBERTa models.
* Prepared training dataset and performed data labeling for supervised machine learning for mortgage doc use case.
* Hyper-parameter tuning performed to yield more accurate and less biased result using randomized searchcv.
* Developed python APIs using FastAPI and worked with production team.
* Adopted Agile practice and scrum framework for project management using Atlassian Jira.
* Version controlling and shared technical documentation and code using and GitLab and Atlassian Confluence.
* Delivered compelling presentations, product demos, roadmap reviews, and discussions to drive adoption of AI.

Tools: PyCharm, Python, Scikit-Learn, Tesseract OCR, Poppler, Spacy, RoBERTa, Transformer, FastAPI, GitLab, Jira, Confluence.

# Client: CNA Insurance - Onsite Technical Lead – Software SLK America Inc, Cincinnati, OH

* Team member of Analytics Data Management Office - AI platform Implementation and Engineering, that combines the best of IT, Analytics and Data Engineering to innovate and deliver IT solutions.
* Vertex AI - Google Cloud Platform - Developing end-to-end Data Science Model automation testing framework.
* Role - Software Developer and Testing (SDET), responsible for developing software components in Feature Service (FS) development and deployment.
* Developed dataflow option module to control the workers count in google cloud dataflow batch API calls.
* Feature API calls testing performed for API diagnostics, on-demand scoring and batch. Developed Pytest suite for adapting variations in testing and in python and curl commands.
* Rule engine- Giant SQL queries transformed into the rule table manually for providing grain level access to the FS.
* Developed testing components for vertex AI integrated data science model – cyber risk model.
* Involved in Functional testing, code testing – Veracode, API testing – Postman, Python.
* Data validation using python great expectation library and model API testing component developed using pytest.
* Supported platform migration from Alteryx promote to vertex AI by validating claim data. BigQuery data validation performed in python for FNOL and batch claims.
* Claim center guidewire: created and validated different claims data-Auto, GL, and workers compensation claims.
* Review large scale project requirements to understand project architecture, business rules and design.
* Identify optimum automation scope from and create test automation scripts and run them to validate application functionalities for data and model testing.
* Identify any gaps with respect to coding standards, guidelines and technical debt and verify the quality of code.
* Collaborate with project team to integrate automation scripts into CI/CD pipeline and monitor the model performance.
* Coordinating onsite and offshore team and manage project priorities, deadlines, and deliverables.
* Production Readiness - Responsible for getting all required approvals for the release TSP, UAT and CRQ.
* Adopted Agile practice and scrum framework for project management using Atlassian Jira.

Tools: Python, Pytest, Jupyter VS Code, Vertex AI - Google Cloud Platform, Dataflow, GitLab, Github, Postman, Veracode

Big Query, Jira, Atlassian

# North Carolina A&T State University, Greensboro, NC August 2017 – July 2021 Research Assistant, Interdisciplinary Research center

Successful Transition and Effective Pathways into Science, Technology, Engineering, and Mathematics (STEM) for underrepresented minorities and women.

* National Science Foundation awarded Project onNational Center of Educational Statistics (NCES) dataset.
* Performed Exploratory Data Analysis of the longitudinal studies data from NCES, Washington, USA ▪ Data extraction and analysis: Designed framework for data extraction for complex data.
* Prepare chart, graphs, and tables to comprehend analysis using seaborn and matplotlib in python.
* Report findings and outcomes to NCES.
* Performed Statistical Modeling, Predictive Modeling, Data-Driven Modeling, Pipelining, Hyperparameter Tuning.
* Algorithms: Random Forest, Decision Tree, Logistic Regression, Linear Regression, Bagging, Boosting etc.
* Python Scripting, Data visualization, Data Cleaning, Regression Analysis, Hypothesis Testing, Data Modeling, Optimization, Dimensionality reduction.
* Pearson’s correlation, T-test, Chi-square test between variables that influence STEM transitions and pathways.
* Questionnaire design and answers to explore the academic, socioeconomics, and demographic barriers in STEM. Tools: Jupyter, Python, Scikit-Learn, Pandas, Scipy stats, NumPy, imblearn, seaborn, matplotlib.

# North Carolina A&T State University, Greensboro, NC August 2017 – July 2021 Research Assistant, Computational Data Science and Engineering Department

Domain-Specific, optimized Text-to-SQL machine translator for scholarly publication database search.

* Developed end-to-end optimized solution for Text-to-SQL machine translator for scholarly publication database.
* Designed context-free grammar for text parsing with greedy approach of pattern recognition.
* Coded cascaded five batch series of 365 regular expressions in a well-defined sequence and ordered manner.
* Information Retrieved for the recognition of Named-Entity (NE), NE Attribute, Question Intension and Focus.
* Invented a multi-programming parsing tool, 10^5 times faster than the high-level implementations.
* Developed a faster and efficient Phrase-based Parser to parse the user question and generate intermediate SQL.
* Innovated and developed a systematic algorithm for Graph-based Translator that generates optimized final SQL from intermediate SQL with minimum number of tables involved and optimized attribute selection.
* Adapted graph theory and SQL optimization theory to generate faster, robust, and efficient SQL form text.
* Presented and published IEEE conference paper and another 2 papers ready for journal.

Tools: Eclipse, Python, Regular Expressions, Pattern Recognition, UNIX stream editor, MySQL, SQLite3, NLTK, tkinter, networkx, Graphs, matplotlib

# University of Pune and Aurangabad University, India Jan 2008 - Oct 2014 Assistant Professor, Computer Engineering Department

* Primary responsibility to efficiently carry out course classroom and lab teaching-learning process ▪ High quality teaching and conducted expert lectures in other college as a subject in-charge.
* University subject coordinator: Programming Lab, Computer Architecture, Microprocessor and Microcontroller ▪ University Examination coordinator and Assistant to Senior Supervisor.
* Exam paper setter, Internal and External Examiner and Evaluator.
* Member of college National Board of Accreditation committee and council
* Organized and participated in various conferences, courses and Faculty Development Programs.
* 4 scientific papers, 11 conferences|workshops|FDP|Course|Certifications (Microsoft, ACM, IEEE etc.)
* Assisted University’s Training and Placement cell
* Project advisor and evaluator for final year computer engineering students.
* Assessment, record keeping, and evaluation of student’s continuous progress.
* Mentor and Undergraduate Guardian Faculty Member
* Performed allotted duties as a part of Anti ragging committee and other college social activities.
* Subjects undertaken: Theory of Computation, Principles of Compiler Design, Computer Architecture, Operating System, Microprocessor and Microcontroller, Programming Lab, Python, Java, C, C++, High performance computing, Distributed Computing, Map-reduce Framework Hadoop etc.

PUBLICATIONS/CONFERENCE:

* [S. Deshmukh and M. Bikdash, "Automatic Text-to-SQL Machine Translation for Scholarly Publication Database Search," 2020 SoutheastCon, Raleigh, NC, USA, 2020, pp. 1-8, doi: 10.1109/SoutheastCon44009.2020.9368296.](https://ieeexplore.ieee.org/abstract/document/9368296/?casa_token=whQynAwyIJQAAAAA:4eL6hRlfefyShyIfLMXFn54jfpwxwRodgbDpTijZ5g-g7CUikjCO2s0jWv8tL1jyuWTo54r1Tg)
* [Deshmukh, Sulochana. "Schema-aware text-to-query formulation and applying graph database knowledge for query optimization." Available at SSRN 4576621.](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4576621)
* [Deshmukh, Sulochana. "Qualitative and Quantitative Assessment of Text-to-Sql Machine Translation." Available at SSRN 4580425.](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4580425)
* [Deshmukh, Sulochana. Domain-Specific Text-to-SQL Machine Translation for Non-Relational and Relational Scholarly Publication Database. Diss. North Carolina Agricultural and Technical State University, 2021.](https://search.proquest.com/openview/15ef32854e4f8f54319aeeed0a1c7378/1?pq-origsite=gscholar&cbl=18750&diss=y&casa_token=YVdDDR-dkXEAAAAA:aPog1wuLevAUnP6us85T38-gN1bY-arJ3rcW2P06h3BFMFBUI394jj8GO-Km1JagH7hUPYUp2Gg)
* Attended IEEE Women in Engineering conference 2022, Providence, RI.
* Poster paper presented in 9th Annual Graduate Research Poster Presentation Competition in NCA&T, April 2020. ▪ Journal paper published: Sulochana M. Gore, Dr. Sulochana B. Sonkamble. Predictive Algorithm for Critical Event Management in Wireless Sensor Network, International Journal of Science and Research (IJSR), Volume 4 Issue 1, January 2015.
* Journal paper published: Sulochana Madhukar Gore, Dr. Sulochana B. Sonkamble. State Based Routing Protocol for performance Enhancement under wireless sensor network. International Journal of Innovative Research in Computer and Communication Engineering, Vol. 3, Issue 8, August 2015.
* Presented paper in Fourth Post Graduate Conference of Computer Engineering (cPGCon) 2015, Board of Studies (Computer Engineering), S.P. Pune University at MET’s Institute of Engineering, Nashik, India on March 14th 2015.
* Attended two days Third Post Graduate Conference of Computer Engineering (cPGCon) 2014, Board of Studies (Computer Engineering), S.P. Pune University at Matoshri College of Engineering and Research Center, Nashik, India on March 28th -29th 2014.

Ph.D. MAJOR COURSEWORK

Artificial Intelligence | Machine Learning and Data Mining | Applied Probability and Statistics | High-Performance and Scalable Computing | Programming for Scalable Computing Systems | Research Computing Environments |

Computational Methods for Algebraic Systems| Computational Modeling and Visualization | Computational Software

Tools

TRAINING | COURSE| CERTIFICATION | BADGE:

* BFSI: 2021 Anti-Money Laundering- Bank Secrecy Act for U.S. | ISMS Awareness | Privacy of Consumer Information | Risk Management | Cybersecurity | U.S. Code of Business Conduct and Ethics | Technology Change Management | Technology Incident and Problem Management | Fair Treatment to Customer
* Software Development: Agile Foundations | Secure SDLC Implementation 2022 | DevOps Practices and Tools for the Enterprise | Advanced Docker: Exploring Advanced Docker Principles & Practices, Installation and Integration|

Working with Git |Python | Shell Scripting | SQL Database Development & Design| Business Intelligence | ETL | BigData | Data Modeling and Reporting

VOLUNTEER WORK

* Regional Lead Ambassador for IEEEXtreme 15.0, 2021| Region 3, Southern USA
* Proctored 9 teams from US, India and Israel (the winning team) in IEEEXtreme 15.0.
* Member of IEEE Student Activities Committee’s (SAC) Virtual Speakers Bureau (VSB), 2022.
* University Grad Mentor, NC A&T State University.
* Reference provided to IEEE senior member elevation applicant.
* Reviewed the AI course content designed to train company’s fresher talent.
* Recommendation provided to students and peer for higher education in USA, UK.
* Non-profit Python coding online course conducted for non-programming background researcher.
* Python in Native Language (Marathi) course conducted for rural area school teachers and students.

I believe in growth through continuous learning and application of knowledge. I hereby certify that the

information given above is true, complete and correct to the best of my Knowledge and belief.

Sulochana Deshmukh, PhD