Pradeep Kumar D. S.

https://dspradeepkumar.github.io/

in Linkedin   **G Publications**   **O GitHub**   **℗ 809-599-3914**   **M pradeepkumarst@gmail.com**

SUMMARY

- With 15 years of experience in the IT industry, including
  - over **12 years specializing in Java, Spring, and other Java technologies**,
  - more than **5 years of expertise in Python, AI/ML, and related fields**, and
  - over **2 years of experience in Golang, Generative AI, Blockchain, and Responsible AI.**
- Proficient in Java, Python, AI/ML models
- Skilled in designing and implementing robust security architectures, ensuring data integrity and compliance with industry standards.
- Skillful at translating complex data into actionable strategies that enhance operational efficiency and secure business growth.
- Strong passion for latest technologies like – LLM, Distance Metrics, Blockchain, ML, AI, NLP.

KEYWORDS & KNOWLEDGE

(Coding Skills)	Java, Spring Boot, Spring Cloud, MongoDB, Python, Solidity, NodeJS, Android, OpenNLP, Javascript, ANTLR, Golang, LLVM, Smali, Generative AI, Responsible AI, Llama, DALL-E, Azure AI/ML, CI/CD, HTML, CSS, jQuery, Agile, Bootstrap, NoSQL, PostgreSQL, Hibernate, Log4j
(ML & NLP Frameworks)	Scikit-learn, PyTorch, MLFlow, Apache Airflow, Azure MLOps, GitHub, GitFlow, LangChain, DataBricks, Firebase, Docker, Azure Cloud, SpaCy, Gensim
(Statistics & Machine Learning)	Logistic Regression, Linear Regression, Clustering (K-Means), Principal Component Analysis (PCA), XGBoost, Random Forest, Decision Tree, CatBoost, Artificial Neural Network (ANN), Generative Adversarial Network (GAN), Mahalanobis Distance Metrics
(PC Member & Reviewer)	ICISS 2024 – 20th International Conference on Information Systems Security, Journal of Computers and Security (Elsevier)
(Functional Expertise)	Metrics Definition and Tracking, A/B Testing and Design in ML
(Recent Interesting Projects)	3 Retrieval-Augmented Generation (RAG) Applications (Querying Security Constraints) • PDF Querying – for security attacks and properties, • Android App Querying – for app behavior monitoring, • GDPR Querying – for policy and geo-constraints

EDUCATION

Ph.D.	Computer Science	VIT University, Chennai, India	8.41/10	April 2024
M.S.	Computer Science	CEG, Anna University, Chennai, India	7.1/10	December 2010
B.E.	Computer Science	University of Madras	75%	April 2004

HONORS AND AWARDS

1.	**Got 1st Price in National Cybersecurity R&D Roadshow held at Indian Institute of Science, Bangalore**	February 2023
2.	**Awarded – VIT's RAMAN RESEARCH AWARD (November 2022) – Cash Award (Rs. 10,000)**	November 2022
3.	**Participated in ASURE Blockchain Innovation Challenge, ASU SkySong, Arizona, USA**	October 2019
4.	**Participated in Karnataka Government Blockchain Hackathon 2018 (Bangalore).**	November 2018
5.	**ATL Monthly Sunshine Award – August 2016**	August 2016

DOMAIN SKILLS

- **Application Security (Analysis of IPC Communication Patterns and Knowledge Sharing)**
- **E-commerce (Blockchain)**
- **Healthcare (Ubiquitous Computing)**
- **Cybersecurity (Secure Coding Practices, Code Smells)**
- **Governance (Compliance)**
- **Data Security**
- **Algorithms & Data structures**
- **Requirement Analysis**
- **Cryptography**

6. **Intellectual Property Creator – Publications (2014), Accenture Technology Labs.**		August 2014
7. **Young Inventor Award - 2013, Accenture Technology Labs.**		September 2013
8. **Spirit of Innovation Award - 2013, Accenture Technology Labs.**		August 2013
9. **Achievement of the Month – 2012, Accenture Technology Labs.**		August 2012
10. Received **performance recognition** for designing the Salesforce's APEX language parser from scratch.		August 2012

EMPLOYMENT & EXPERIENCE

Zoho Corporations, India	July 2023 to Present	Research and Engineering Scientist

Responsibilities at Zoho:

- As part of a team of 8 members engaged in research and development activities, I led the data analytics, compiler design and Gen AI projects.
- I designed and developed innovative, systematic algorithms to tackle real-time problems using available data, and proposed novel machine learning and optimization approaches to create cutting-edge applications.
- Identifying the novel aspects of the projects, preparing a prototype (PoC) for validation and patenting the ideas.

Projects

* Spearheaded the implementation of Generative AI and Responsive AI based CAPTCHA security for securing web applications for Zoho web platform
- Technology Used - DALL-E, OpenAI (gpt-3.5-turbo), Python, NLP, Flask
* Led the architecture and implementation of NLP Requirement to Code Gen using Deep Neural Network and Generative AI for distributed Integrated Development Environment (IDE) for Zoho's proprietary programming language
- Technology Used - Llama 2, Python, NLP (Spacy), Semantic Analysis
* Led the architecture and implementation (PoC) of Distributed Code Sync and Role-based Access Control (RBAC) with responsive and Probabilistic Bayesian network
- Technology Used - Python, NLP (Spacy), Code Metrics
* Developed a novel architecture for Secure Memory Management in Compiler Design

VIT University	July 2020 to June 2023	Research and Teaching Assistant

Responsibilities at VIT University:

- Handling Labs for Bachelor and master's Students.
- Project Guidance to Bachelor and master's Students.
- Conducting Exams in Software Engineering, Programming, Information and Network Security, and Machine Learning Subjects.

Projects/Tools Developed In 3 Year:

1. StickyMutent – Android, Java, SOOT (Binary Analysis), Knowledge Graph
2. MULBER – Android, Java, Python, ML Forecasts, AI Decision Maker, AI-based Decisions
3. AndroML – Android, Java, Python, Stacked ML, ANN
4. DyPolDroid – Android, Java, Go Lang, Python, JSON Policy, SOOT (Binary Analysis)
5. MURAX – Java, Smali/Baksmali, APK Downloader, NLP

SKAN AI	Aug 2022 to Feb 2023	Intern (Data Science)

Responsibilities at SKAN AI:

- Led the implementation of ML automation and NLP analysis tools to process backend MongoDB data.
- Pioneered the design and implement data visualization with a novel contextual suggestion using jQuery, Bootstrap, Python, MongoDB Aggregation Pipelines.
- Utilize NodeJS, Bootstrap, Python, MongoDB and Flask to develop and optimize these solutions.

SEFCOM LABS, Arizona State University	Mar 2019 to Apr 2020	Research Scholar (Intern)

Responsibilities at SEFCOM:

- Contributed to both research and implementation on Android Communication Security, LTE Network Security, and Security Analysis utilizing Machine Learning and AI.
- Pioneered by developing a new Android Security benchmark.
- Led the implementation of Ensemble Learning for real-time traffic sniffing in LTE networks (using multiple Machine Learning algorithms and Security Models).

Accenture Labs, Bangalore	June 2011 to Mar 2019	Associate Principal – R&D

Responsibilities at Accenture:

- Implemented research PoC to quickly demonstrate the possible solution to the client's problems
- Led multiple research papers and had regular meetings with clients to understand the problems and propose technical solutions.

– Actively build relationships and serve as a technology expert while collaborating with clients' teams.		
– Work closely with other Accenture Software Engineering groups to implement and execute projects.		
– Present solutions to leadership and contribute to patent filings.		

Sasken Communications Tech. Ltd	May 2010 to June 2011	Senior Engineer – Software

Responsibilities at Sasken: Served as an onsite consultant for our client ST Ericsson in Bangalore, where I developed GPS and AGPS solutions using C and Java. Engaged in scrum interactions with the client's team, delivering solutions and gaining a deep understanding of their requirements.

TE Software Services Pvt.Ltd.	September 2009 to April 2010	Software Engineer

Responsibilities at TE Software: Participated in Android application development, organized scrum meetings, contributed to application design discussions, understood business requirements, and collaborated with teams to design and implement modules.

DCSE, CEG, Anna University.	June 2007 to August 2009	Research Assistant

Responsibilities at DCSE: Build on research ideas and directions provided by the Professor to deliver a quality paper and presentation. Understand the research problem and requirement and to provide research ideas, publish papers in conferences and to co-ordinate with different department leads.

PATENTS

(FROM ACCENTURE)

- ✓ **US11256712B2, Pradeepkumar D S,** Kapil Singi, Vikrant Kaulgud, RAPID DESIGN, DEVELOPMENT, AND REUSE OF BLOCKCHAIN ENVIRONMENT AND SMART CONTRACTS.
- ✓ **US20180075363A1, Pradeepkumar D S**, Shrikanth N C, Aditya Bhola, Venkatesh Subramania, Vikrant Kaulgud, Sanjay Podder, Automated Inference of Evidence from Log Information.
- ✓ **US10643102B2,** Shrikanth NC, Venkatesh Subramanian, Anutosh Maitra, Anurag Dwarakanath, **Pradeepkumar D S**, Aditya Bhola, Incident prediction and prevention.
- ✓ **US10922654B2,** Kapil Singi, Vikrant S. KAULGUD, Sanjay Podder, Afsal Marattil, **Pradeepkumar D S**, Software assurance and trust in a distributed delivery environment.
- ✓ **US10832187B2,** Vibhu Sharma, Vikrant S. KAULGUD, Parikshit MANIAR, Sanjeev Vohra, Sanjay Mittal, Aravindan T S, Michael A. Brinkley, Gurdeep Virdi, **Pradeepkumar D S**, Data processor for integrating agile development projects into an end-to-end development platform.
- ✓ **CA2932644C**, Vibhu Sharma, Vikrant S. Kaulgud, Parikshit Maniar, Sanjeev Vohra, Sanjay Mittal, Arvindan, Michael A. Brinkley, Gurdeep Virdi, **Pradeepkumar D S**, DATA PROCESSOR FOR PROJECT DATA.
- o "System For Automated sharing and acquiring of knowledge by bot or human collaborative environment" – Filed (US) 2019
- O "System For choreographing and Recommendation of apps based on collective intelligence and prediction capability" – Filed (US) 2019

(FROM ZOHO)

- o **Pradeepkumar D S**, Punithavathi P, "Image Captcha Using Generative AI" – Filed (US) 2023

CONTRIBUTION TO OPEN CODE COMMUNITY (GITHUB PROJECTS)

I. StickyMutent – (https://anonymous.4open.science/r/tools-1486/)
  - **Tools & Languages**: Android, Java, SOOT - Binary Analysis as Rest Service, Cloud-based Knowledge Graph
II. DyPolDroid – (https://github.com/sefcom/DyPolDroid)
  - **Tools & Languages**: Android, Java, Go Lang, Python, JSON Policy, SOOT (Binary Analysis)
III. MURAX – (https://anonymous.4open.science/r/tools-1486/)
  - **Tools & Languages:** Java, Smali/Baksmali, APK Downloader, NLP
IV. JTrust Programming Language – (https://github.com/trustedownership/jtrust)
  - **Tools & Languages**: Java, ANTLR

PUBLICATIONS

https://scholar.google.com/citations?hl=en&user=XwFbfMMAAAAJ&view_op=list_works&sortby=pubdate

REFERENCES

- Upon Request