

# Anol Kurian Vadakkeparampil

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Gainesville, Florida

## CAREER SUMMARY

Highly accomplished professional pursuing a Masters in Computer Science from the University of Florida. Proven track record as a Senior Software Engineer and Software Engineer at Apisero and GEP respectively, currently a student co-op at Boehringer Ingelheim. Showcased expertise in data analysis, artificial intelligence, full-stack development, and software engineering. Demonstrated adaptability, versatility, team leadership, cross-functional collaboration, and excellent communication skills.

## EDUCATION

<b>University of Florida (Scholarship – Achievement Award)</b> <i>Masters in Computer Science (GPA: 3.74 - SEM III)</i>	<b>Aug 2022 – May 2024</b>
<b>University of Mumbai</b> <i>Bachelors in Computer Engineering (GPA: 8.20)</i>	<b>Jul 2016 - Aug 2020</b>

## WORK EXPERIENCE

<b>Boehringer Ingelheim</b> <i>Student Co-op Advanced Applications Developer</i> <ul style="list-style-type: none"><li>Collaborate with security to develop an <b>AI-assisted</b> car registration-tracking system using Flask, Azure and <b>YOLOv8</b> with 88% accuracy.</li><li>Enhance Golden Egg and Platinum Egg <b>Machine Learning</b> models to achieve up to 95% accuracy in detecting contamination in eggs.</li><li>Support Quality by utilizing the latest <b>LLM models</b> to identify trends using <b>context injection</b> boosting productivity by 60%.</li><li>Ideate solutions to increase efficiency of internal teams by automating tasks using <b>AI tools</b> and <b>Full Stack Development</b> (8+ projects).</li></ul>	<b>Jan 2024 – May 2024</b>
<b>University of Florida</b> <i>Student Research Assistant (Oct – Jan)</i> <ul style="list-style-type: none"><li>Contributed to the development and maintenance of the Open Source repository of DSSAT-Pythia for <b>parallelized computing</b>, optimized code to improve performance by 70% and reduce memory footprint from O(n) to O(1).</li><li>Actively updating DSSAT-pythia tool to Go Language to improve parallelization by employing <b>multithreaded multiprocessing</b> and deploying code to <b>HiPerGator Supercomputer</b> in tandem with AWS Cloud Infrastructure.</li></ul> <i>Student Research Assistant – Volunteer (June – Aug)</i> <ul style="list-style-type: none"><li>Built a website using React, Node.js with Express Framework, SQL Server, and open-source tools like Mol* (Molstar) for displaying 3D visualizations of the lab's proprietary protein information.</li></ul>	<b>Jun 2023 – Jan 2024</b>
<b>Apisero (Kipi.bi)</b> <i>Senior Software Engineer/Developer</i> <ul style="list-style-type: none"><li>Leveraged 100GB of GDELT (Global Database of Events, Language, and Tone) data to establish a correlation between stock index fluctuations and international news, delivered under tight deadlines.</li><li>Guided and led 5 team members in training projects for kipi.bi by monitoring code implementation of <b>data warehousing and data visualization</b> concepts, using <b>Snowflake, Tableau, Python and AWS</b>.</li></ul>	<b>Feb 2022 – Apr 2022</b>
<b>GEP</b> <i>Software Engineer/Developer (Promoted from Associate)</i> <ul style="list-style-type: none"><li>Developed and delivered a robust Inventory Management (IM) module for gep.com as a full-stack developer, utilizing Object-Oriented Programming and Microservices in a versatile team environment, fostering cross-functionality across 5 departments.</li><li>Designed and owned 5 workflows (Frontend – Backend – Db) with 15 APIs (REST), Angular 2+ (Plugin Architecture), C# (ASP.NET Core - Onion Architecture), Microsoft Azure (Cloud, CI/CD Devops), SQL Server, Elasticsearch, Kibana and MongoDB (NoSQL).</li><li>Implemented robust systems to generate usage reports across systems, enabling data-driven decision-making and improving overall efficiency for clients by 20%.</li><li>Established a real-time inventory tracking system across multiple warehouses and locations, providing accurate counts on-demand.</li><li>Devised and deployed a cloud-based file storage solution, resulting in seamless file management and easy retrieval for various workflows, enhancing collaboration, and a 70% reduction in file handling time.</li><li>Created and executed a highly efficient workflow for document generation (leveraging OCR capabilities) and management to track inventory movement between warehouses.</li><li>Streamlined the process of creating movement request documents within the system, significantly reducing user clicks by 35%.</li><li>Significantly contributed to revamping the core system to accommodate client requests and configurations, ensuring 100% scalability.</li><li>Instructed and mentored new hires - freshers, reducing onboarding time by 20% and providing support in debugging and issue resolution.</li></ul> <b>Recognition:</b> "Team Player" for preeminent contribution in teamwork awarded by Engineering Manager during Kudos Awards.	<b>Aug 2020 – Jan 2022</b>

## PROJECTS

<b>Causal Inference in Machine Learning</b> <i>Tech: Python, Machine Learning, Neural Networks, TensorFlow, NumPy, Pandas.</i> <ul style="list-style-type: none"><li>Conducting exploratory study on causal inference in machine learning, focusing on foundational concepts, cutting-edge techniques, and integration into various domains.</li><li>Implementing and evaluating counterfactual prediction algorithms i.e., Causal Effect Variational Autoencoder.</li><li>Utilizing semi-synthetic benchmark dataset IHDP to assess the algorithms' performance, gaining valuable practical experience.</li></ul>	<b>Oct 2023 – Dec 2023</b>
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## Spatiotemporal Analysis and Prediction of Global Social Unrest

Oct 2023 – Dec 2023

**Tech:** Python, Machine Learning, GDELT API, OpenAI GPT API, Pandas, NumPy, Scikit-learn, TensorFlow.

- Composed advanced predictive models using Deep Neural Networks, Graph Neural Networks, Transfer Learning: XGBoost and Large Language Model for early warning and forecasting of global societal unrest.
- Preprocessed and leveraged close to 250GB of raw and diverse data sources such as GDELT event data and ACLED.
- Conducted a literature survey to assess the current state-of-the-art techniques, identifying key research gaps that warrant exploration.

## GatorLibrary Management System

Oct 2023 – Nov 2023

**Tech:** Python, Advanced Data Structures, Red-Black tree, Binary Min-heaps.

- Develop a comprehensive library management system for GatorLibrary using Python.
- Implement a Red-Black tree data structure for efficient book management and utilize Binary Min-heaps for book reservations.
- Design a sophisticated book node structure, incorporating book details, availability status and reservations and support essential operations (CRUD) like book lookup, insertion, borrowing, returning, and deletion.
- Implemented advanced features, such as finding the closest book and tracking color flips in the Red-Black tree.

## Mitigating adversarial and privacy attacks on CNN models

Mar 2023 – Jun 2023

**Tech:** Python, Machine Learning, Neural Networks, TensorFlow, NumPy, Pandas, Scikit-learn, OpenCV.

- Conducted research on defense mechanisms against adversarial examples, evaluating and comparing 8 different methods including smoothing techniques, noise addition, denoising techniques, color space reduction, and autoencoders.
- Constructed a final defense using a combination of Autoencoder and Local Median Smoothing technique, maximizing effectiveness against adversarial and privacy attacks, while minimally affecting benign accuracy.
- All approaches evaluated through 4 adversarial attacks and 3 privacy attacks; wherein final defense achieved an accuracy in range of 65% to 85% depending on attack which is an improvement of approximately 138%.

## Repackaging in Third-Party Marketplaces

Oct 2022 – Dec 2022

**Tech:** Python, Androguard, ADB, Context Triggered Piecewise Hashing.

- Investigated repackaging in 4 third-party android marketplaces, conducted an exploratory study and identified repackaged apps by comparing signatures of their dex-codes to those of reference APKs from the Google Playstore.
- Examined 741 apps (excluding reference: 300 apps), finding that 3% had heavy repackaging and 7% had minor signature discrepancies.

## Algorithms Programming Project

Aug 2022 – Dec 2022

**Tech:** Java, Algorithms.

- Successfully developed and rigorously tested 5 versions of 3 different algorithms, progressively increasing in complexity.
- Demonstrated expertise in handling various algorithmic approaches, including Brute Force, Greedy Approach, Divide and Conquer, and Dynamic Programming (Recursive & Iterative).

## Interview Evaluation System

Jun 2019 – Oct 2020

**Tech:** ML, Neural Networks, Python (Flask), Tensorflow, OpenCV, MongoDB, Watson Speech

- Engineered and integrated a mock interview platform that employs ML techniques to evaluate candidate confidence and suitability for specific roles.
- Utilized image processing to provide an assessment of expressions (63% accuracy), ASR to convert speech to text, and applied NLP to evaluate fluency in language and relevance of content.

**Publication:** Automated Training for Job Interviews in International Journal of Computer Trends and Technology.

## SKILLS

**Programming Languages:** C#, Python, C/C++, Java

**Databases:** SQL Server, MongoDB, Elasticsearch

**Frameworks:** Angular 7, HTML/CSS, JavaScript, TypeScript, Flask, ASP.NET Core, OpenSSL

**Architectures/Concepts:** Debugging, MVC, Plugin (Angular), Full Stack, CI/CD, REST, Onion

**Data Science:** Artificial Intelligence, Machine learning, Deep Learning, OpenCV, Tensorflow, Pytorch, Keras, Numpy, Pandas, Computer Vision

**Tools:** Visual Studio/Studio Code, Word, Excel, Git/GitHub, Postman, AWS/Azure/GCP (Cloud), Docker, Agile, Jira, Kibana, Tableau

## ACADEMIC COURSES

Sem 1: Analysis of Algorithms, Distributed Operating System Principles, Computer and Network Security

Sem 2: Mathematics for Intelligent Systems, Trustworthy Machine Learning, Engineering Leadership

Sem 3: Machine Learning, Advanced Topics in Data Science, Advanced Data Structures

## CERTIFICATIONS

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| • <b>Specialization: Deep Learning - Stanford University and DeepLearning.AI (5 Courses)</b>       | Present  |
| • <b>Specialization: Machine Learning - Stanford University and DeepLearning.AI (3 Courses)</b>    | Oct 2023 |
| • SQL for Data Science - University of California, Davis   | Nov 2021 |
| • Machine Learning – Stanford University   | Nov 2021 |
| • Introduction to Game Development - Michigan State University                                     | Jul 2020 |
| • Basic Elements of Design: Design Principles & Software Overview – University of Colorado Boulder | Jul 2020 |
| • Introduction to XR: VR, AR, and MR Foundations - Unity   | Jul 2020 |
| • More C# Programming and Unity - University of Colorado System                                    | Jul 2020 |
| • Introduction to C# Programming and Unity - University of Colorado System                         | Jun 2020 |
| • <b>Specialization: Developing Applications with Google Cloud - Google Cloud (4 Courses)</b>      | May 2020 |
| • Using Python to Access Web Data - University of Michigan   | Apr 2020 |