

# RUPALI BHATNAGAR

## SENIOR SOFTWARE ENGINEER

### WORK EXPERIENCE

Servicenow	Sr. Software Engineer (Security Operations)	Apr'19-
<p>As an individual contributor, worked with the team to develop the following high value features using <b>Servicenow</b>® platform:</p> <ul style="list-style-type: none"><li>• <b>Dynamic Approval Rule Engine</b> for Vulnerability Exceptions - Designed and implemented a multi-level, dynamic approval rule engine using ServiceNow Flow Designer supporting deferment and exception requests. Enhanced the vulnerability remediation process by <b>reducing approval time by 40%</b>.</li><li>• <b>Penetration Testing Request Catalog &amp; Workflow Automation</b> - Developed and automated workflows for managing penetration testing requests, <b>reducing manual intervention by more than 30%</b> and streamlining the vulnerability management lifecycle across <b>50+ subsystems</b>.</li><li>• <b>Background Job Processing Framework</b> - Architected and developed a <b>robust threaded background job processing framework</b> to handle long-running tasks that previously strained system resources. Enabled easy migration through a user-friendly configuration interface. Features included:<ul style="list-style-type: none"><li>○ Multithreaded execution for improved performance, achieved <b>efficacy of 60% in some use cases</b></li><li>○ Job status tracking and cancellation support, leading to <b>100% visibility on the executing and errored out tasks</b>.</li><li>○ This framework significantly enhanced system stability and scalability for resource-intensive operations.</li></ul></li><li>• <b>Real-Time Data Aggregation Engine for Dashboards</b> - Built a high-performance aggregation framework for near real-time analytics of large-volume data. This engine powers key internal dashboards by enabling multi-dimensional analysis and timely data visualization, supporting critical decision-making and visibility. Used for generating metrics <b>over 100k+ records in an 8hour timeframe</b>.</li><li>• <b>Assignment Rule Engine for Vulnerability Remediation</b> - Designed and implemented a robust, cache-optimized assignment rule engine to automatically prioritize infrastructure vulnerabilities and policy violations. This engine ensured accurate routing to appropriate remediation groups and is leveraged daily by ITIL users. On a <b>daily basis</b>, it can handle <b>1M vulnerable items</b>.</li><li>• <b>Machine Learning-Based Assignment Recommendations</b> - Developed a classification-based recommendation system for assignment suggestions using classification framework. <b>20% increase in task allocation accuracy</b> and reducing manual assignment effort.</li><li>• <b>CISO &amp; Vulnerability Dashboards</b> - Led the design and development of the CISO dashboard and supporting vulnerability dashboards to visualize statistics on high-risk vulnerabilities. Worked on defining <b>key metrics and structuring the data pipeline</b>, used on a regular basis for around <b>50 organizations to handle their vulnerabilities</b>.</li><li>• <b>Vulnerability Source Integration</b>- Engineered integrations with third-party sources like <b>Veracode, Qualys, Tenable, Microsoft TVM</b> to ingest vulnerabilities. Designed foundational systems to standardize and leverage this data across internal remediation workflows.</li><li>• <b>Hackathon Projects:</b><ul style="list-style-type: none"><li>○ <b>Diagnostic Framework</b> – Built a framework to streamline issue tracking across customer instances, <b>reducing debugging time by 40%</b>.</li><li>○ <b>ML for Vulnerability Response</b> – Prototyped machine learning models for <b>grouping remediation tasks, estimating remediation targets</b>, and improving response workflows, implemented for the core application.</li><li>○ <b>PoA&amp;M Generator Tool</b> – Developed a tool to auto-generate Plans of Action &amp; Milestones based on vulnerability data, developed for NowOnNow support team which used this to handle Servicenow vulnerabilities.</li><li>○ <b>High-Volume Data Generator</b> – Created a scalable data generation tool to support load testing and performance benchmarking, generates <b>100M records across 20-30 tables</b> with configuration, used by our performance team.</li></ul></li></ul>		
Darwinbox Digital Solutions	Software Developer	Aug'18-Mar'19
<ul style="list-style-type: none"><li>• Designed and implemented a microservice architecture for capturing <b>Audit Logs</b> for all the data modified by each client in the system written in <b>PHP with Yii Framework</b> to capture the <b>MongoDB oplogs</b> and push it to <b>SQS queueing system</b>.</li><li>• Created a <b>Oplog Processor in Node JS</b> that finds the object difference, taking into account string, array and embedded documents and converts all the logs in a user readable format. Created an internal dashboard in vanilla <b>Javascript</b> to allow for adding new trackable fields.</li></ul>		
NowFloats	Software Developer	Jun'17-July'18
<ul style="list-style-type: none"><li>• Designed and developed responsive web features on the website using frontend technologies in <b>C#, Bootstrap, Javascript, JQuery and Knockout.js</b> which is used by 50000+ clients on a daily basis.</li><li>• Integrated the Facebook Graph API using it to enable merchants to share his products and updates over his facebook profile, page and Facebook Shop (facebook ads extension).</li><li>• Using <b>machine learning models</b>, created a SPIDER module that can predict the sales revenue generated by a sales person given his history and his training for the product with up to <b>84% accuracy</b>.</li></ul>		

- Designed and implemented a **Booking System Module** that can be used as a generic booking system for hotels, clinics, restaurants, using **Node.js** and **WebActions API**.
- Developed an internal module that allowed merchants to enable product offers and allow purchase of the product at discounted prices over **Boost Keyboard** using **Kitsune**, **k-Pay** and internal **Assured Purchase** module.
- Designed and developed an internal **Order Management Tool** dashboard that helps track purchases, payment status, delivery status and grievance redressal using **AngularJS** and **C#**.

Finomena(closed down operations May'17)	Software Developer	Feb'17-May'17
<ul style="list-style-type: none"> <li>• Created and maintained internal dashboards used for <b>Loan Management, Repayments, Collections, Transaction Tracking</b> using <b>PHP (Laravel Framework)</b> to scale the system to <b>8000+ loans</b> per month with <b>Eloquent ORM</b> for handling data in <b>MySQL</b> for storage of large amount of data.</li> <li>• Used <b>Artisan</b> framework for <b>task scheduling, cron handling</b> and <b>testing</b>. Also used Laravel modules for <b>authorization, validation, event handling, mailing</b> for handling internal &amp; external mails and loan processing in the system.</li> <li>• Built web pages using <b>Blade templates, HTML, CSS, Javascript, jQuery</b> and <b>Bootstrap</b> for processing and analysing loan data and user data.</li> </ul>		
Babajob.com (acquired by Quikr Jun'17)	Software Engineer	May'16-Jan'17
<b>Babajob telephony system(SMS and Voice)</b> <ul style="list-style-type: none"> <li>• Was involved in the redesign of the telephony system to scale it to <b>10,000+ inbound calls, 20,000+ outbound SMS</b> per day.</li> <li>• Was involved in building a scalable system in <b>Golang</b> which used <b>RabbitMQ</b> as the message bus, <b>Redis</b> as in-memory cache and <b>MongoDB</b> for persistence.</li> <li>• Designed and implemented <b>RESTful outbound SMS service</b> to send SMS to users on specific events.</li> <li>• Implemented a <b>basic logging framework</b> in Golang for debugging and tracing.</li> <li>• Worked with product management to understand <b>important metrics</b> and helped in <b>tracking</b> those metrics.</li> </ul>		

## PROJECTS

<b>SSJK CRM System</b>	Complete enterprise CRM platform demonstrating full-stack capabilities, business logic implementation, and real-world production experience. <ul style="list-style-type: none"> <li>- Lead management &amp; tracking system</li> <li>- Customer relationship management</li> <li>- Business process automation</li> <li>- Analytics dashboard with reporting</li> <li>- Sales pipeline tracking</li> <li>- Team collaboration tools</li> </ul>
<b>ACE-Coliving Website</b>	Modern full-stack Next.js application with database integration, demonstrating expertise in React framework, TypeScript, and backend development. <ul style="list-style-type: none"> <li>- Premium coliving spaces showcase</li> <li>- Hotel accommodations listing</li> <li>- Contact form with lead management</li> <li>- PostgreSQL database integration</li> <li>- Responsive modern design</li> <li>- SEO optimized</li> </ul>
<b>VOICE TRANSCRIBER</b>	Unique AI/ML integration project combining Python backend, web interface, and containerization - demonstrates technical versatility beyond typical web development. <ul style="list-style-type: none"> <li>Speech-to-text conversion</li> <li>- Audio processing pipeline</li> <li>- Web-based interface</li> <li>- Real-time transcription</li> <li>- Docker deployment</li> <li>- File upload and processing</li> </ul>

## DISSERTATION & COURSEWORK

<b>Dissertation Project Title</b>	Human Activity Recognition using HMM based Intermediate Matching Kernel by representing videos as sequence of sets of feature vectors
<b>Methodology</b>	- Created a methodology to classify a given video into a predefined class based on the activity performed in the video. - Used MATLAB and Piotr's CV Toolbox to create the classifier and Python, PNetCDF and OpenMPI to extract relevant features from videos.
<b>Machine Learning Technologies</b>	- Studied the effectiveness of Bayesian classifiers, Gaussian mixture models, Perceptrons, Artificial Neural Networks and Support Vector Machines on linearly separable, non-linearly separable and overlapping data for data classification tasks. - Used Octave, MATLAB and SVMToolbox III for studying and analysing the results.
<b>Other Projects</b>	Coursework projects included a basic Management Information System(MIS), Cybernetics Protector System and Product Management System
<b>Paper Presentations</b>	Presented the components of a basic information retrieval system and Google search model in Seminar of Information Retrieval System and Google's PageRank Algorithm

## TECHNICAL SKILLS

Programming Languages	GlidePlatform(Proficient), Javascript(Proficient),NodeJS(Proficient), PHP(Proficient), Golang(Proficient), C++(Proficient), Java(Experienced), MATLAB/Octave(Experienced), , Python(Moderately Experienced)
Web Technologies	Next.js, TypeScript, React, Bootstrap, HTML/CSS, Javascript, jQuery, Ajax, Knockout.JS
DBMS	MySQL, MongoDB, Redis, PostgreSQL, ElasticSearch
Queue Systems	RabbitMQ, Redis Queue, AWS SQS
Cloud & DevOps	AWS, Docker, Jenkins, Git, Linux/Ubuntu, OSX.
Miscellaneous	Git(Proficient), LaTeX (Proficient), Microsoft Office(Proficient), Mustache Templates & Handlebars.js(Moderately Experienced),ElasticSearch(Beginner).

## ACADEMIC PROFILE

2016	M.TECH	Computer Science & Engg	National Institute of Technology, Goa	84.2%
2014	B.E.	Computer Science & Engg	LNCT Bhopal(R.G.P.V.)	85.8%
2010	XII (C.B.S.E.)	Science	St. Joseph's Convent School, Bhopal	83.0%
2008	X (C.B.S.E.)	NA	St. Joseph's Convent School, Bhopal	88%

## ACHIEVEMENTS & ACTIVITIES

<b>Professional</b>	• <b>Winners of NowFloats Hackathon for product innovation for sales.</b>	2017
<b>Academic</b>	• <b>Chancellor's Scholarship(Topper)</b> by Rajiv Gandhi Proudlyogiki Vishwavidyalaya, Bhopal	2013,2012
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	• Silver medalist in <b>Persistent</b> Systems Limited Programming Contest held at RGPV, Bhopal	2013
<b>Others</b>	• Organized intra-college programming competition, LNCT Bhopal	2012
	• Conducted cultural events in NIT Goa	2014-2016

## POSITIONS OF RESPONSIBILITY

NIT Goa	Teaching Assistant, Computer Science & Engg Department	2014-2016
NIT Goa	Vice President - Computer Science Dept	2014-2016
LNCT, Bhopal	Student Coordinator, Training & Placement Dept	2013-2014