



# Pranav Garg

Software Developer

Straight-shooting software innovator turning complex challenges into secure, scalable solutions

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## WORK EXPERIENCE

### Software Development Engineer 2 Amazon Web Services - OpenSearch

04/2022 - Present

Bangalore, India

Security Infrastructure and Packages team

Achievements/Tasks

- Worked on Optional Plugins feature enabling customers to use amazon offered vetted open-source and proprietary plugins. Created a comprehensive security analysis SOP for plugins, designed plugin lifecycle management and informational APIs. The feature launched successfully in October 2023, with over 1,250 domains adopting optional plugins.
- Led the creation of HanLP Optional Plugin, enabling a \$10M ARR workload migration from SOLR. Performed security analysis, migrated the plugin from Elasticsearch to OpenSearch, implemented dictionary management and established SOPs for future plugin onboarding. The successful launch in April 2024 facilitated the complete migration to OpenSearch by year-end.
- Worked on Partner Plugins feature, enabling third-party vendors to offer plugins. Designed and implemented separation of package ownership and entitlement, continuous vulnerability scanning, and integrated sandbox validation. Successfully launched in November 2024 with initial partners Portal26 and Babel Street, while establishing foundation for future AWS Marketplace integration.
- Worked on Custom Plugins feature, enabling customers to deploy custom business logic. Led the design and implementation of a validation framework combining static and dynamic checks through deep artifact scans and containerized environments created iteratively over multiple proof of concepts. Also worked on secure propagation of customer logs. The feature was launched in November 2024.
- Worked on conducting security reviews with application security team, coordinating with pentesters, mitigating risks, creating test plan, orchestrating SDK release and creation of SOPs for operational work for multiple features.
- Worked on service CICD infrastructure improvements by designing and implementing component-level pipeline frameworks. Developed a Python-based automation script for merging development branches to mainline, integrating multiple internal services. Enhanced integration testing by creating automated VPC resource generation with secure credential management.
- As part of my operational responsibilities, I was part of two distinct on-call rotations: an internal team rotation where I performed root cause analysis, service maintenance, and release management; and a customer-facing emergency rotation where I directly responded to customer production incidents and service large-scale events requiring immediate resolution to minimize business impact.
- Successfully mentored multiple interns and guided other intern mentors, leading to successful project deliverables and pre-placement offers. Created comprehensive mentorship plans, provided technical guidance, and ensured project completion while fostering professional development, resulting in positive outcomes for both interns and the organization.
- As an AWS security guardian, I helped multiple teams with refining their feature threat models and called out potential threats before engaging Application Security team.

### Software Development Engineer 1 Amazon Web Services - OpenSearch

10/2021 - 03/2022

Bangalore, India

Security Infrastructure and Packages team

Achievements/Tasks

- Led the creation of opensource OpenSearch API specification project. I created the proof of concept, implemented the initial API definitions, mentored team members, and created an integration testing framework. The project became foundational for automated testing, client generation, documentation generation, and backporting generated classes to core for serialization & deserialization.
- Spearheaded the synthesis of a staging stack to support security integration tests, collaborating with region build teams to wire multiple microservices and their pipelines. This involved AWS resource setup, microservice integration, and creation of detailed SOPs, significantly improving development velocity for security and package teams. The SOP was used to optimize region build automation.

## WORK EXPERIENCE

### Software Development Engineer

#### Amazon - Value Added Services

11/2019 - 10/2021

Hyderabad, India

*I was part of Value added Services, working on a platform which enables the creation, management and fulfillment of various service based businesses within Amazon.*

##### *Achievements/Tasks*

- My responsibilities include designing and implementing solutions for business requirements, understanding and enhancing existing architectures, mitigating operational challenges faced by the team.
- Rewrote the patch-worked iOS App for team's hybrid mobile application from the scratch. The project involved diving into the existing codebase, learning iOS app development, creation of multiple proof of concepts, implementing various best practices for the stack and integration of the application with the existing WebApp. The resulting application saw a decrease in App size by 57%.
- Designed and implemented a high volume chatroom lifecycle management cloud infrastructure. As part of the project, I created a chatroom management API suite along with a PubSub based solution which automates the creation and closure of chatrooms along addition and removal of chat participants based on job events and job related metadata.
- Designed configurable temporal resource recommendation system. This involved scoping and discussing the business requirements, exploring the existing infrastructure within across the organization, creating a design that maximizes the usage of existing components and designing new components with appropriate tenets and responsibility along with their low level behavior.
- Worked on multiple small scale projects such as migrating the team stack for a new marketplace, creation of bridging components between the team's systems and the systems owned by shipment tracking team, writing UI integration tests for our web application using Selenium based test suite, Integration of third-party scanner functionality in Mobile platforms and updating deprecation in legacy app code-base as per platform security requirements.

### Software Development Intern

#### Amazon

05/2019 - 07/2019

Hyderabad, India

*I interned at Amazon as part of a services platform named Value Added services.*

##### *Achievements/Tasks*

- I designed and implemented a server-less, cloud based data ingestion and discovery pipeline. As part of nine week high paced internship, I learned about team's infrastructure, learned Java, chalked out the high level and low level design constructs, implemented and deployed the project.
- Worked with the following AWS offerings: S3, Lambda, Kinesis, DynamoDB, SQS, Cloudwatch and Elastic Search.
- Received a full time offer for my work.

### Research Assistant

#### Cognition Lab, Centre for Neuroscience, IISc

01/2019 - 05/2019

Bangalore

##### *Achievements/Tasks*

- I authored my undergraduate thesis titled "Predicting behavioral scores of individuals using structural connectivity" based on Human Connectome Project dMRI dataset.
- Created a cloud based AWS Pipeline to process diffusion MRI data which brought down the processing time of one patient from 6 hours to 30 minutes.
- Modeled White matter connectome into a weighted graph, engineered features from the graph and predicted behavioral scores of individuals using machine learning algorithms.

### Intern

#### Google Summer of Code 2018 - Ruby Science Foundation

05/2018 - 08/2018

##### *Achievements/Tasks*

- Explored the architectures of various open source plotting libraries.
- Designed and developed a scientific plotting library for Ruby, "Rbyplot" from the scratch. I created Ruby - C binding for GR Framework and created a plotting library, written solely in Ruby on top of it. Used a Test Driven Development approach to code the project.
- Presented Rbyplot at RubyConf 2018.

## WORK EXPERIENCE

### Research Intern

#### Indian Space Research Organization (ISRO)

05/2017 - 07/2017

RRSC-W Jodhpur

##### Achievements/Tasks

- I lead a project titled "Detection of Windmills from Satellite Images using Deep Neural Networks".
- I planned the milestones and a timeline for the project and mentored team members in familiarizing themselves about the concepts of Computer Vision using deep learning.
- The project involved end to end implementation of the data analysis pipeline with tasks including web scraping, image annotation, training and providing an interface to use the trained network.

## SKILLS

Amazon Web Services

Spring MVC

Cloud Computing

iOS App Development

Java

Service Architecture design

Distributed systems

## SOFT SKILLS

Project Scoping and Management

Public Speaking

## EDUCATION

### B.E. Electrical and Electronics Engineering (Hons.)

#### BITS Pilani

08/2015 - 08/2019

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## ACHIEVEMENTS

### Speaker at OpenSearchCon Europe 2025, Amsterdam (05/2025)

*I will be discussing the creation and backporting of OpenSearch IDL definitions in this upcoming iteration of OpenSearchCon Europe*

### Speaker at RubyConf 2018, Los Angeles (11/2018)

*I was the only Student speaker at RubyConf 2018, where I discussed the creation of a scientific plotting library in Ruby. My talk can be found at <https://www.youtube.com/watch?v=7QBkckZ1aNQ>*

### Participated in CAMP 2018 (06/2018)

*I was one of the few undergrads selected to attend an international summer school about Neuroscience at NCBS Bangalore.*