

NATIONAL HIGHWAYS AUTHORITY OF INDIA
(Ministry of Road Transport & Highways)

The National Highways Authority of India (NHAI) is responsible for development, maintenance and management of National Highways entrusted to it and for matters connected therewith or incidental thereto.

2. NHAI invites applications for the following positions for filling up on contract basis to work in AI Cell of NHAI. Details of posts and terms & conditions as well as period of engagement, eligibility, experience etc. are as under :-

S. No.	Designation of the Expert(s)	Number of positions*
1	Senior AI Engineer	02
2	AI Engineer	03
3	Associate AI Engineer	05
4	Full Stack Engineer	02
5	AI Product Designer	02
6	Associate AI Product Designer	03

* The number of positions may increase or decrease, as per requirement of NHAI, with the approval of the Chairman, NHAI.

A. Roles and Responsibilities of AI Cell Team:- The AI Expert's Team will assist and advise NHAI on all Artificial Intelligence/ Machine Learning related activities. The roles and responsibilities are enclosed at **Annexure-A**.

B. Period of Engagement, Extension & Termination:-

- (a) The period of full-time engagement for AI Experts shall initially be for three (03) years, which may be extended for two (02) more years on yearly basis, based on requirement of NHAI and their satisfactory performance with the approval of Chairman, NHAI.
- (b) The engagement of an AI Expert can be terminated by either party by giving 45 days' notice in advance or payment of a minimum of 45 days remuneration by either side in lieu of 45 days' notice period, as the case may be, and the contract would terminate automatically at the end of such period.
- (c) If the performance of AI Expert is not found satisfactory, his/ her contract may be terminated with immediate effect by NHAI without assigning any reason thereof and without any notice.

C. Remuneration Structure:- The following Remuneration Band / Structure has been framed, to attract best talent suitable to the requirements of NHAI:-

(a) Remuneration Band:-

Position	Remuneration
Senior AI Engineer	Rs.2,50,000 per month
AI Engineer	Rs.2,00,000 per month
Associate AI Engineer	Rs.50,000 per month (during internship) Rs.1,50,000 per month (Full-time)
Full Stack Engineer	Rs.1,75,000 per month
AI Product Designer	Rs.1,75,000 per month
Associate AI Product Designer	Rs.50,000 per month (during internship) Rs.1,30,000 per month (Full-time)

- (b) Payment of remuneration shall be made on monthly basis, based on verification of attendance by the GM (IT) of AI Cell.
- (c) Travelling Allowance/ Daily Allowance (TA / DA) will be admissible during outstation official visit, as per following norms:-

S. No.	Designation of the Expert(s)	Entitlement for TA / DA
1	Senior AI Engineer	As applicable for DGM
2	AI Engineer	As applicable for Manager
3	Associate AI Engineer	As applicable for Dy. Manager
4	Full Stack Engineer	As applicable for DGM
5	AI Product Designer	As applicable for Manager
6	Associate AI Product Designer	As applicable for Dy. Manager

D. Other Facilities:-

- (i) The leave without pay for professional course/ study/ training of a maximum period of 03 months during the tenure of 03 years may be provided to AI Experts with the approval of Member in-charge of AI Cell.
- (ii) To prevent the confidentiality of data of NHAI, Laptops (on a returnable basis) may be provided to AI Experts, which shall be procured by the IT Division of NHAI. Any loss of a laptop by an Expert should be recovered from the AI Expert. IT Division shall devise adequate checks and safeguards for the safety & security of the Assets and Data.
- (iii) Experts of the AI Cell shall be provided access to GPU-based cloud services and budget for AI tools, services, etc (open-source or proprietary) in pursuit of the requirement of the AI Cell. Many of these tools provide subscription services, and each AI cell members will be able to reimburse with invoices subscription fees not exceeding Rs 10,000 per month with the prior approval of Member in-charge of AI Cell. Any relaxation in this monetary limit shall be made with the approval of Chairman, NHAI.
- (iv) The expert shall be entitled to 08 days paid casual leave and 15 days paid sick leave in a calendar year or on pro-rata basis if the tenure is less than one calendar year. No un-availed will be allowed to be carried forward to the next year. They shall not be entitled to any other kind of leave.
- (v) The Maternity Leave to female AI Experts may be provided as per the Maternity Benefit Act, 1961 (as amended from time to time).
- (vi) The AI Experts will be bound by various laws of the Government of India and will be liable for appropriate legal action in case of any violation. They will also be required to sign a non-disclosure clause / agreement in this regard.
- (vii) The AI Experts engaged by NHAI shall be allowed to work from home for one day in a week, with the consent of GM in-charge of AI Cell.

E. Performance Appraisal and Increment:-

- (a) Annual performance appraisals shall be conducted by the Head of AI Cell.
- (b) The Schedule of Performance Appraisal may be conducted once in a year in 02 cycles, viz. 01st January and 01st July each year.
- (c) The performance appraisal will be linked with Key Performance Indicators (KPI) to be decided in advance with the approval of the Member in-charge of AI Cell.
- (d) Annual increments post performance appraisal, 10% of the previous year's remuneration w.e.f. either 01st January or 01st July (only once in a year), as the case may be, to be approved by the Member in-charge of AI Cell.

F. The terms and conditions, which are not specifically mentioned hereinabove shall be governed as per Guidelines and Procedure for engaging YP/EP in NHAI vide Policy Circular No.1.3.1.12/2017 dated 21.06.2017 (as amended from time to time). Any other relaxation in the provisions of the foregoing policy shall be made with the approval of the Executive Committee (EC) on case-to-case basis.

G. The other terms & conditions of engagement will be in accordance to NHAI Policy Guidelines for engagement of External Professionals and as amended time to time.

H. Corrigendum or Addendum or Cancellation to this advertisement, if any, shall be published only on the website of NHAI. Therefore, the candidates are advised to check the website of NHAI regularly.

NHAI will have the right to terminate the contract at any time, without assigning any reason.

Submission of Applications: Applications are to be submitted online only. The procedure to be followed for filling up the online application is given in the online application portal, which can be accessed at <http://www.nhai.gov.in>. Eligible candidates may apply online on the link provided on the website of NHAI **by 07.10.2025 (upto 06:00 PM)**.

QUALIFICATIONS, ROLE AND RESPONSIBILITIES OF THE EXPERTS**1. Senior AI Engineer**

Field	Details
Role	Senior AI Engineer
Number of Positions	02
Basic Qualifications	A Bachelor's degree in Science, Technology, Engineering, or Business Administration or Quantitative Field such as Statistics/Economics from a recognized university/institute
Desired Qualifications	A Master's degree in Science, Technology, Engineering, or Business Administration or Quantitative Field such as Statistics/Economics from a recognized university/institute
Basic Experience	<p>Minimum Requirement</p> <ul style="list-style-type: none"> - Minimum 5+ yrs end-to-end AI/ML/Data Science delivery, ≥ 1 yr production Gen-AI Product/App. - Has implemented multiple AI/ML solutions in production in a professional settings. - Has implemented at least one functional GenAI solution in production <p>Preferred Requirement:-</p> <ul style="list-style-type: none"> - Has preferably led data/engineering teams. - Strong fundamentals of AI/ML evals and metrics. - Knowledge of fine-tuning open models, managing GPUs, and latency / cost optimisation. - Architected RAG pipelines (chunking strategy, hybrid search, embedding refresh). - Tooling: Pytorch, ollama, genkit, HuggingFace, LangChain, vector DBs, cloud (AWS, GCP or Azure), Weights-and-Biases, Modal, FASTAPI etc. - Very Strong in Python
Proposed Responsibilities	<ul style="list-style-type: none"> - AI model development, deployment, pipeline management, architecture decisions - Harden POCs to production level - Translate the strategic vision of AI Cell into a clear and actionable product roadmap with defined projects and timelines. - Work closely with NHA business stakeholders to understand their needs and translate them into technical requirements and user stories for the development team. - Act as the product owner for AI initiatives, managing the project backlog and prioritizing tasks for the AI Engineers. - Finalize functional requirements, define success metrics, and create wireframes/workflows for new AI applications and features. - Bridge the gap between the strategic goals of the AI Cell and the technical implementation details of the engineering team. - Monitor the performance of deployed AI models and applications, using data and user feedback to guide future improvements. - Liaise with IT vendors and other NHA counterparts to ensure seamless project integration and contract management where applicable. - Review and approve software and model artifacts to ensure they meet business and compliance requirements.

Field	Details
	<ul style="list-style-type: none"> - Training/fine-tune models, prompts, DL models as need be. - Own Gen-AI architecture & best-practice templates for all Cell projects - Supervise AI-I engineers; review code, prompts & eval metrics. - Design model-drift & quality dashboards; institute safety red-teaming - Optimise inference (LoRA/QLoRA, quantisation) to meet GPU cost targets. - Liaise with Full-Stack on secure API design and with Designer on explainability UX. <p>This is a hands-on role and requires a significant amount of programming and technical work, and not just management.</p>

2. AI Engineer

Field	Details
Role	AI Engineer
Number of Positions	03
Basic Qualifications	A Bachelor's degree in Science, Technology, Engineering, or Business Administration or Quantitative Field such as Statistics/Economics from a recognized university/institute
Desired Qualifications	A Master's degree in Science, Technology, Engineering, or Business Administration or Quantitative Field such as Statistics/Economics from a recognized university/institute
Basic Experience	<p>Minimum Requirement:</p> <ul style="list-style-type: none"> - Minimum 2 years of professional AI/ML experience - At least one link to working prototype of AI/ML/LLM app/tool built individually by applicant (proven by sharing link to deployed tool that works on clicking). - Demonstrable projects with Python, Git, and REST fundamentals (proven by sharing Github repo) <p>Preferrable Skills:</p> <ul style="list-style-type: none"> - Demonstrated mini-projects using LLM APIs (chatbot, doc-QA, summariser) preferably deployed in real-world and professional settings. - Understanding of Prompt-engineering patterns (CoT, RCI, self-consistency) - Quick RAG builds with LangChain / LlamaIndex and open-weight models (e.g., Llama 3, Mistral 7B). - Basic eval with ragas / LLM-based graders; logging prompt-response pairs for audit. - Bonus: exposure to vector DBs (FAISS, Milvus) or simple CV tasks. - Classical AI/ML projects is a strong plus.
Proposed Responsibilities	<ul style="list-style-type: none"> - Convert pain-points into working LLM demos and POCs. - Curate reusable prompt & chain libraries for the Cell. - Collaborate with AI-II and Full-Stack on scaling successful prototypes. - Utilize Python to build robust, scalable data pipelines for ingesting diverse datasets relevant to AI modeling (e.g., FASTag, drone imagery, sensor data).

Field	Details
	<ul style="list-style-type: none"> - Develop Python-based scripts for extensive data cleaning, preprocessing, transformation, and validation to ensure data is optimized for machine learning applications. - Collaborate with the AI/PM specialist to perform feature engineering, using Python to create new data features from raw data to improve model performance. - Automate AI workflows, including data extraction, preparation, and model-feeding processes, using Python-based tools and frameworks. - Directly support the modeling process by providing clean, structured datasets and assisting in the initial stages of model development and validation. - Manage and maintain the data environments required for AI development, ensuring data quality and accessibility. - Liaise with NHAI stakeholders to understand and define data requirements specifically for planned AI-driven outcomes

3. Associate AI Engineer

Field	Details	
Role	Associate AI Engineer (Engagement initially on intern-basis)	
Number of Positions	05	
Qualifications	Minimum Requirement:	
	AI Intern	Associate AI Engineer
	Last semester of Bachelor's or Masters degree in Science, Technology, Engineering, or Business Administration or relevant quantitative field (economics, statistics etc) from a recognized university/institute	Bachelor's or Masters degree in Science, Technology, Engineering, or Business Administration or relevant quantitative field from a recognized university/institute
Experience	Minimum Requirement:	
	For AI Intern	Associate AI Engineer
	<ul style="list-style-type: none"> • On-site professional internship in AI/ML undertaken in a company. An academic internship will not be considered. • Demonstrated mini-projects using LLM APIs (chatbot, doc-QA, summariser) which are deployed in real-world. • At least one link to working prototype of AI/ML/LLM app/tool built solo by applicant (proven by sharing link to 	Successfully executed an AI Internship for 4 months in NHAI, and based on the evaluation by the Selection Committee Preferrable Skills: <ul style="list-style-type: none"> - Demonstrated mini-projects using LLM APIs (chatbot, doc-QA, summariser), preferably deployed in real-world and professional settings. - Understanding of Prompt-engineering patterns (CoT, RCI, self-consistency) - Quick RAG builds with LangChain / LlamaIndex and open-weight models (e.g., Llama 3, Mistral 7B).

Field	Details
	<div> <div> <div>deployed tool that works on clicking).</div> <ul style="list-style-type: none"> Demonstrable projects with Python, Git, and REST fundamentals (proven by sharing Github repo) </div> <div> <ul style="list-style-type: none"> - Basic eval with ragas / LLM-based graders; logging prompt-response pairs for audit. - Bonus: exposure to vector DBs (FAISS, Milvus) or simple CV tasks. - Classical AI/ML projects is a strong plus. </div> </div>
Skill set	<ul style="list-style-type: none"> - Demonstrated mini-projects using LLM APIs (chatbot, doc-QA, summariser) preferably deployed in real-world and professional settings. - Understanding of Prompt-engineering patterns (CoT, RCI, self-consistency) - Quick RAG builds with LangChain / LlamaIndex and open-weight models (e.g., Llama 3, Mistral 7B). - Basic eval with ragas / LLM-based graders; logging prompt-response pairs for audit. - Bonus: exposure to vector DBs (FAISS, Milvus) or simple CV tasks. - Classical AI/ML projects is a strong plus.
Proposed Responsibilities	<ul style="list-style-type: none"> - Convert pain-points into working LLM demos and POCs. - Curate reusable prompt & chain libraries for the Cell. - Collaborate with AI experts and Full-Stack on scaling successful prototypes. - Utilize Python to build robust, scalable data pipelines for ingesting diverse datasets relevant to AI modeling (e.g., FASTag, drone imagery, sensor data). - Develop Python-based scripts for extensive data cleaning, preprocessing, transformation, and validation to ensure data is optimized for machine learning applications. - Collaborate with the AI/PM specialist to perform feature engineering, using Python to create new data features from raw data to improve model performance. - Automate AI workflows, including data extraction, preparation, and model-feeding processes, using Python-based tools and frameworks. - Directly support the modeling process by providing clean, structured datasets and assisting in the initial stages of model development and validation. - Manage and maintain the data environments required for AI development, ensuring data quality and accessibility. - Liaise with NHA1 stakeholders to understand and define data requirements specifically for planned AI-driven outcomes

4. Full Stack Engineer

Field	Details
Role	Full Stack Engineer
Number of Positions	02
Basic Qualifications	A Bachelor's degree in Science, Technology, Engineering from a recognized university/institute
Desired Qualifications	A Master's degree in Science, Technology, Engineering from a recognized university/institute
Basic Experience	<p>Minimum Requirements:</p> <ul style="list-style-type: none"> - 3+ yrs building secure web apps & APIs in professional setting - Link to a working deployed tool/webapp developed primarily by applicant - Proficiency in both front-end (e.g., HTML, CSS, JavaScript frameworks like React/Angular) and back-end development (Python Flask and FASTapi) [Prove via Link to Github Project] - Hands-on Docker, CI/CD (GitHub Actions, Jenkins) and logging/monitoring (Prometheus/Grafana). <p>Preferred Requirements:</p> <ul style="list-style-type: none"> - Deployed and scaled Gen-AI / LLM micro-services in production, including streaming token outputs and request batching for GPU efficiency. - Hands-on with vector databases (e.g., Faiss, Milvus, Weaviate) and retrieval APIs that power RAG pipelines. - Familiar with Kubernetes GPU scheduling / KServe / Triton Inference Server or equivalent model-deployment stack. - Implemented prompt & response logging, tracing (e.g., LangSmith, OpenTelemetry), and integrated model metrics (latency, token count, error rate) into Grafana etc. <p>Experience enforcing data-protection and Responsible-AI guardrails at the API layer (rate-limiting, PII redaction, policy checks).</p> <ul style="list-style-type: none"> - Demonstrated experience in designing user interfaces, application workflows, and mock-ups. - Familiarity with deploying and maintaining applications on cloud is preferred - Deploying ML/LLM workloads on cloud - Implementing IAM/SSO, network policies, cost dashboards. - Understanding of AWS/GCP/Azure. - Working knowledge of LangChain, LlamaIndex or similar orchestration frameworks for chaining LLM calls. - Familiarity with DPDP-compliant logging, secret management (AWS Secrets Manager, Hashicorp Vault), and SOC-2 style audit controls.
Proposed Responsibilities	<ul style="list-style-type: none"> - Helping take POCs to Production - Managing internal chainlit/librechat implementation. - Building and Managing internal NHA AI web-app where all AI mini-services are hosted for organisation-wide usage. - Containerise & deploy Gen-AI services; manage blue-green rollouts. - Own model-ops pipeline end-to-end: packaging, versioning, blue-green roll-outs, model registry, and rollback strategy.

Field	Details
	<ul style="list-style-type: none"> - Build retrieval & embedding jobs that keep vector indexes fresh and optimise chunking strategies for domain documents. - Instrument real-time dashboards for token cost, context-window utilisation, hallucination alerts, and GPU usage per service. - Build user dashboards, chat UIs, and internal admin panels. - Set up CI/CD, observability (latency, token-usage, cost). - Maintain data-ingest jobs (ETL etc) feeding RAG, LLM apps

5. AI Product Designer

Field	Details
Role	AI Product Designer
Number of Positions	02
Basic Qualifications	Bachelor's or Masters degree in Design / HCI / Visual Communication/Arts/ Service Design/System Design and Management/Business/Product/Engineering or related
Desired Qualifications	Masters degree in Design / HCI / Visual Communication/ Arts /Service Design/ System Design and Management/ Business/Product/ Engineering or related
Basic Experience	<p>Minimum requirement:</p> <ul style="list-style-type: none"> - Minimum 03 yrs conducting on-site ethnographic studies or user-research, shadowing users and mapping service journeys, designing data intensive or AI interfaces, with a digital component is a must. - End-to-end ownership of at least one AI-centred interface or tool—from insight to high-fidelity prototype. [To be proven by sharing portfolio link]. - Advanced Figma workflow: variables, auto-layout, component libraries, design tokens, and real-time collaboration; ability to export specs for dev hand-off. - AI literacy: working knowledge of Gen-AI concepts (RAG, hallucination, embeddings), prompt-engineering basics, and evaluating LLM outputs for bias/safety. - Proficient user with interactive prototyping & frontend hand-off using Framer, Vercel, Lovable etc or comparable platforms. - Storytelling & facilitation: conducting design-thinking sprints, creating clear artefacts (storyboards, videos) and presenting to senior leadership. <p>Preferrable Requirement:</p> <ul style="list-style-type: none"> - AI-first interaction design: crafting prompt areas, confidence indicators, fallback paths and human-in-loop flows that highlight an LLM's power and its limits - Interactive prototyping & hand-off: building high-fidelity prototypes in Framer, Vercel Preview, or comparable tools; delivering clean HTML/CSS snippets when needed. - Data & system thinking: reading API docs / ERDs, visualising data journeys, and ensuring designs respect data-classification tiers and DPDP guard-rails.

	<ul style="list-style-type: none"> - Usability testing & analytics: running SUS/heuristic reviews, A/B tests, click-path analysis, and synthesising findings into actionable UI iterations. - Design-to-dev collaboration: fluency in Git, ticket writing, agile rituals, and pairing sessions with Full-Stack & AI engineers.
Proposed Responsibilities	<ul style="list-style-type: none"> - Run Design Thinking workshops and sprints to identify usecases of AI within the organisation. - Ground-research: spend time at PIUs/ROs, toll plazas and project offices to capture unmet needs and data flows. - Opportunity framing: translate field insights into Gen-AI use-case briefs and interaction-principles for the AI Cell. - AI-first interface design: create wire-frames, high-fidelity mocks, and interactive prototypes that foreground Gen-AI capabilities while surfacing limitations and guard-rails. - Prototype shipping: collaborate with Full-Stack & AI Engineers to launch pilot UIs on cloud (Vercel/Framer/Next.js), ensuring accessibility and multilingual readiness. - Service integration: produce service blueprints that show how new AI touchpoints plug into existing NHAI workflows and roles. - Usability & iteration: run quick usability tests, capture metrics, synthesise feedback, and iterate until adoption targets are met. - Design system stewardship: maintain a lightweight design-token library (colours, typography, components) aligned with NHAI brand; share reusable AI-UX patterns with internal teams.

6. Associate [AI](#) Product Designer

Field	Details	
Role	Associate AI Product Designer (Engagement initially on intern basis)	
Number of Positions	03	
Qualifications	Minimum Requirement:	
	For AI Product Design Intern Last semester of Bachelor's or Masters in Design / HCI / Arts/Visual Communication/ Service Design/System Design and Management/Business/Product/Engineering or related	Associate AI Product Designer Bachelor's or Masters degree in Design / HCI / Visual Communication/Arts/ Service Design/System Design and Management/Business/Product/Engineering or related
Experience	Minimum Requirement:	
	For an Intern <ul style="list-style-type: none"> - One professional on-site internship at startup/company/private org is mandatory where applicant involved in either conducting on-site ethnographic studies, shadowing users and mapping service journeys or designing 	Associate AI Product Designer Successfully executed an AI Product Design Internship for 4 months in NHAI, and based on the evaluation by the Selection Committee Preferrable Skills:

Field	Details
	<p>digital data intensive or AI interfaces.</p> <ul style="list-style-type: none"> - End-to-end ownership of at least one AI-centred interface or tool — from insight to high-fidelity prototype. [To be proven by sharing portfolio link] - Daily power-user of Figma/Canva (auto-layout, variables, variants, component libraries) [Proven by Sharing Link to Figma/Canva project] <p>Preferrable Requirement:</p> <ul style="list-style-type: none"> - Comfort with interactive prototyping & frontend hand-off using Framer, Vercel, Lovable etc or comparable platforms. <ul style="list-style-type: none"> - Field-research & service design: ethnographic interviewing, shadowing, journey mapping, and service-blueprint drafting to uncover real-world highway-operations pain-points. - AI-first interaction design: crafting prompt areas, confidence indicators, fallback paths and human-in-loop flows that highlight an LLM's power and its limits. - Advanced Figma workflow: variables, auto-layout, component libraries, design tokens, and real-time collaboration; ability to export specs for dev hand-off. - Interactive prototyping & hand-off: building high-fidelity prototypes in Framer, Vercel Preview, or comparable tools; delivering clean HTML/CSS snippets when needed. - Data & system thinking: reading API docs / ERDs, visualising data journeys, and ensuring designs respect data-classification tiers and DPDP guard-rails. - Usability testing & analytics: running SUS/heuristic reviews, A/B tests, click-path analysis, and synthesising findings into actionable UI iterations. - Accessibility & localisation: WCAG compliance, multilingual layouts (Hindi/English first; extensible to regional scripts), and low-bandwidth design considerations. - Design-to-dev collaboration: fluency in Git, ticket writing, agile rituals, and pairing sessions with Full-Stack & AI engineers. - AI literacy: working knowledge of Gen-AI concepts (RAG,

Field	Details
	<p>hallucination, embeddings), prompt-engineering basics, and evaluating LLM outputs for bias/safety.</p> <ul style="list-style-type: none"> - Storytelling & facilitation: conducting design-thinking sprints, creating clear artefacts (storyboards, videos) and presenting to both engineers and senior IAS leadership.
Proposed Responsibilities	<ul style="list-style-type: none"> - Run Design Thinking workshops and sprints to identify usecases of AI within the organisation. - Ground-research: spend time at PIUs/ROs, toll plazas and project offices to capture unmet needs and data flows. - Opportunity framing: translate field insights into Gen-AI use-case briefs and interaction-principles for the AI Cell. - AI-first interface design: create wire-frames, high-fidelity mocks, and interactive prototypes that foreground Gen-AI capabilities while surfacing limitations and guard-rails. - Prototype shipping: collaborate with Full-Stack & AI Engineers to launch pilot UIs on cloud (Vercel/Framer/Next.js), ensuring accessibility and multilingual readiness. - Service integration: produce service blueprints that show how new AI touchpoints plug into existing NHAI workflows and roles. - Usability & iteration: run quick usability tests, capture metrics, synthesise feedback, and iterate until adoption targets are met. - Design system stewardship: maintain a lightweight design-token library (colours, typography, components) aligned with NHAI brand; share reusable AI-UX patterns with internal teams. - Knowledge sharing: conduct micro-workshops to up-skill engineers and domain officers on human-centred, AI-first design thinking.