

A REPORT OF

### PARTICIPATION OF

# ATAL BIHARI VAJPAYEE VISHWAVIDYALAYA,

BILASPUR (C.G.)

ΑT

# CHHATTISGARH RAJYOTSAVA- 2024 (CHHATTISGARH FOUNDATION DAY)

ON THE THEME

**AMRITKAAL: CHHATISGARH VISION @2047** 

**A**T

RAJYOTSAVA GROUND, NEW RAIPUR ATAL

NAGAR (C.G.)

FROM

4-6 NOVEMBER, 2024

### **EVENT DETAILS**

Atal Bihari Vajpayee Vishwavidyalaya, Bilaspur (C.G.) proudly participated in the Chhattisgarh Rajyotsava-2024, held from 4 to 6 November 2024, at Rajyotsava Ground, New Raipur Atal Nagar, Chhattisgarh. The theme for this year's celebration was "Amritkaal: Chhattisgarh Vision @2047." The Department of Higher Education, Government of Chhattisgarh, invited universities across the state to showcase their achievements and contributions toward the state's progress. The university's participation was made possible under the guidance of Prof. A.D.N. Bajpai, Vice Chancellor, and leadership of Dr. H.S. Hota, Head of the Department of Computer Science and Applications..

The university was allotted a dedicated area by the Department of Higher Education at the Rajyotsava Ground, where it set up an impressive stall. The stall served as a platform for students to represent the university's vision and innovations. One of the key highlights of the stall was a 1.30-minute video presentation titled "Discipline, Compassion, and Excellence for Developed Chhattisgarh," which emphasized the university's core values and its role in shaping a prosperous Chhattisgarh.

Aligned with the central theme of technological advancement and the state's vision for 2047, the university showcased its expertise in the field of Artificial Intelligence (AI). The university's stall featured various innovative models created by students, all focused on AI and related technologies. These included:

**Center of Excellence on AI-ML & IoT:** A dedicated space for cutting-edge research and development in AI, Machine Learning (ML), and the Internet of Things (IoT).

**Working Robots:** Functional robots including Basic Robo Car and 5–Axis Robo demonstrated the practical applications of AI in robotics.

Smart Building: A model of an intelligent building, integrating AI to optimize energy use, security, and automation.

**Chhattisgarh AI-related Web Portal:** A portal designed to promote AI research, resources, and developments specific to Chhattisgarh.

**AI-sangi** (**Humanoid Robot**): A humanoid robot developed by students, showcasing the future of human-robot interaction.

**AI-based Bada for Cattle:** An AI-powered system designed to improve livestock management and agriculture in the state.

These models not only demonstrated the university's capabilities in AI but also highlighted its commitment to building a future-ready Chhattisgarh.

A significant moment during the event was the visit of the Chief Minister of Chhattisgarh, Shri Vishnu Deo Sai, to the university's stall. He took the time to interact with the students and expressed his admiration for their innovative work. The Chief Minister praised the efforts of the university and encouraged the students to continue their research and development in the field of AI and technology, emphasizing the importance of these innovations for the future growth and prosperity of Chhattisgarh.

The participation of Atal Bihari Vajpayee Vishwavidyalaya in Rajyotsava-2024 was a remarkable opportunity for the university to showcase its strengths in technology, particularly in Artificial Intelligence.

### **EVENT DETAILS**



In the state of Chhattisgarh, India, 1 November of every year is celebrated as Chhattisgarh Rajyotsava (Chhattisgarh Foundation Day), as on this date in the year 2000, the Government of India officially declared it to be an independent state. The President of India gave his consent to the Madhya Pradesh Reorganisation Act, 2000 on 25 August with the Government of India setting 1 November 2000 as the day Chhattisgarh would be carved out of Madhya Pradesh.

Since then, the state government organises a 5 day festival starting 1 November of every year in the capital of Chhattisgarh, Raipur. In 2024, due to the festival of Diwali the three-day festival of Rajyotsav held from 4–6 November 2024 at Atal Nagar. The official theme of the event is "Amritkaal: Chhatisgarh Vision @2047". The 3 day festival showcases a cultural extravaganza that depicts culture and tradition of Chhattisgarh and the role of tribes that the state inherits.

### LETTER FROM REGISTRAR FOR PARTICIPATION

# अटल बिहारी वाजपेयी विश्वविद्यालय, बिलासपुर (छत्तीसगढ़)

कोनी पुलिस धाना के समाने विकासपुर-रतनपुर मार्ग, कोनी जिला- विनासपुर (घ.ग.) 495000, फोन : 07752-220031, पीक्स 07752-260294, ई-पेल : registrar@bilaspuruniversity.ac.in website: www.bilaspuruniversity.ac.in

क्रमांक / 1022 / रथा प्रशा / 2024

विनांक रूड /10/2024

प्रति

आयुक्त,

उच्च शिक्षा संचालनालय

नवा रायपुर अटल नगर, रायपुर (छ.ग.)

विषयः -राज्योत्सव 2024 के संबंध में।

संदर्भः -आपका पत्र क्रमांक 892/आउशि/सम./2024 नवा रायपुर, अटल नगर दिनांक 21.10.2024

-00----

विषयांतर्गत संदर्भित पत्र के द्वारा दिनांक 23.10.2024, अपरान्ह् 01.00 बजे आयुक्त, उच्च शिक्षा संचालनालय, नवा रायपुर, अटल नगर में बैठक आयोजित की गई है। बैठक में दिये गए निर्देशों के संबंध में राज्योत्सव 2024 हेत् इस विश्वविद्यालय से संबंधित जानकारी निम्नानुसार है:-

1. 01:30 मिनट की वीडियों का शीर्षक	Discipline, Compassion and Excellence for developed Chhattisgarh विकसित छत्तीसगढ़ के लिये अनुशासन, करूगा एवं छत्कृष्टता
2. विश्वविद्यालय का USP पर आधारित थीम -	Chhattisgarh Aritificial Intelligence
<ol> <li>प्रदर्शित किए जाने वाले विषयों / प्रादर्शों की रुपरेखा —</li> </ol>	Center of Excellence on AI-ML & IoT     Working Robots     Smart Building     Chhattisgarh AI Related Web Portal     AI-Sangi (Humanoid Robot)     AI based Bada for Cattle

आदेशानुसार

कुलसचिव

दिनांक २5/10/2024

पु. क्रमांक / 1.02 ३ / स्था.प्रशा. / 2024

प्रतिलिपि :--

कुलपति के निज सहायक, अटल बिहारी वाजपेयी विश्वविद्यालय, बिलासपुर को सूचनार्थ।

2. डॉ. एच.एस.होता, प्राध्यापक एवं विभागाध्यक्ष संगणक विज्ञान वि.वि. शिक्षण विभाग को सूचनार्थ। डॉ. डी.एस.वी.जी.के. कलाघर प्राध्यापक एवं विभागाध्यक्ष सूक्ष्मजीव विज्ञान वि.वि. शिक्षण विभाग को सूचनार्थ।

डॉ. पूजा पाण्डेय सहायक प्राध्यापक एवं विभागाध्यक्ष वाणिज्य वि.वि. शिक्षण विभाग को सूचनार्थ।

डॉ. हामिद अब्दुल्ला सहायक प्राध्यापक एवं विभागाध्यक्ष होटल मैनेजमेंट, वि.वि शिक्षण विभाग को सूचनार्थ।

श्री यशवंत कुमार पटेल सहायक प्राध्यापक एवं विभागाध्यक्ष खाव्य प्रौद्योगिक, वि.वि शिक्षण विभाग को

स्चनार्थ।

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# STUDENTS REPRESENTED UNIVERSITY

# अटल विहारी बाजपेयी विश्वविद्यालय, बिलासपुर (छ.ग.)

कोनी पुलिस थाना के सामने, विलासपुर—रतनपुर मार्ग, कोनी, विलासपुर (छ.ग.) 495009 ई ग्रेल : hodcsa@bilaspuruniversity.ac.in वेबसाईट : www.bilaspuruniversity.ac.in

ыніф : 1364/CSA/2024

बिलासपुर, दिनांक: 28 / 10 / 2024

### //आवश्यक सूचना//

विभाग में अध्ययनरत् छात्रों को सूचित किया जाता है, कि दिनांक 04-06 नवम्बर, 2024 तक आयोजित राज्योत्सव कार्यक्रम में विभाग द्वारा मॉडल के प्रदर्शन हेतु निम्नांकित छात्र निर्धारित तिथि के अनुसार कार्यक्रम में अपनी सहभागिता सुनिश्चित करेंगे-

दिनांक	छात्रों के नाम
03/11/2024	दिनकर
04/11/2024	आंचल देवांगन, अकांक्षा गौतम, चंद्रकला राठौर, खुशी देवांगन
	अकांक्षा सिंगौर, कुलदीप साहू, निशा कुम्भकार, पूजा कैवर्त, रविन्द्र श्रीवास, सौम्या देवांगन, शिवांगी पाठक, स्वेजल गुप्ता
06/11/2024	देवलाल पटेल, लेमा देवांगन, तान्या गुप्ता, वासुदेव

इस संबंध में समस्त छात्र अपने अभिभावक से हस्ताक्षरित सहमित पत्र डॉ. श्रिया साहू के पास जमा करना सुनिश्चित करें।

राज्योत्सव कार्यक्रम के दौरान भोजन, यात्रा एवं आवास संबंधी व्यवस्था विश्वविद्यालय द्वारा किया जावेगा।

Head & Department

कम्प्यूत्तर्भमङ्खांस्एळ्डाण् सीक्रेण्झाविभाग <sup>4</sup>tal Bihari Vajpcyee Vishwavidyalaya

#### प्रतिलिपि:-

- 1. कुलपति महोदय के निज सहायक को माननीय कुलपति महोदय के सीदर सूचनार्थ।
- 2. कुलसचिव के निज सचिव को माननीय कुलसचिव महोदय के सादर सूचनार्थ।
- 3. डॉ. श्रिया साहू को आवश्यक कार्यवाही हेतु सूचनार्थ।
- 4. कार्यालयीन प्रति।

# VIDEO TITLED "DISCIPLINE, COMPASSION, AND EXCELLENCE FOR DEVELOPED CHHATTISGARH,"

At the Rajyotsava-2024, one of the major highlights of the Atal Bihari Vajpayee Vishwavidyalaya stall was the 1.30-minute video presentation titled "Discipline, Compassion, and Excellence for Developed Chhattisgarh." The video emphasized the university's core values and its pivotal role in contributing to the growth and prosperity of Chhattisgarh. The video conveyed the university's mission and vision, highlighting its commitment to excellence in education, research, and community development.

The presentation also introduced the university's vision: "Towards Excellence through Equity, Access, and Quality Education." This vision reflects the university's dedication to providing high-quality education that is inclusive and accessible, ensuring that students from diverse backgrounds have equal opportunities to excel in their academic and professional pursuits.

The video provided an overview of the university's establishment and its jurisdiction. Atal Bihari Vajpayee Vishwavidyalaya was officially created through the Gazette notification on 03.02.2012, under Chhattisgarh Act No. 07, 2012, and came into existence in June 2012, in accordance with the Chhattisgarh Vishwavidyalaya (Amendment) Act, 2011. The university serves as a key educational hub for the region, with its jurisdiction spanning four districts: Bilaspur, Mungeli, Korba, and Gaurela-Pendra-Marwahi.

In addition to its academic and philosophical foundations, the video also showcased the university's state-of-the-art infrastructure, including advanced laboratories and research centers. One of the key highlights was the Centre of Excellence on AI-ML and IoT, where students and researchers engage in cutting-edge projects using advanced technologies. The video featured equipment like Arduino, Raspberry Pi, Smart Health Kits, and working robots, which are part of the university's initiative to foster innovation and technological advancement. These resources play a crucial role in shaping the future of the students and aligning with the state's vision of a technologically advanced Chhattisgarh.

Through this video, Atal Bihari Vajpayee Vishwavidyalaya effectively communicated its role as a leader in higher education and research, highlighting its contributions to the development of both Chhattisgarh and the nation as a whole.

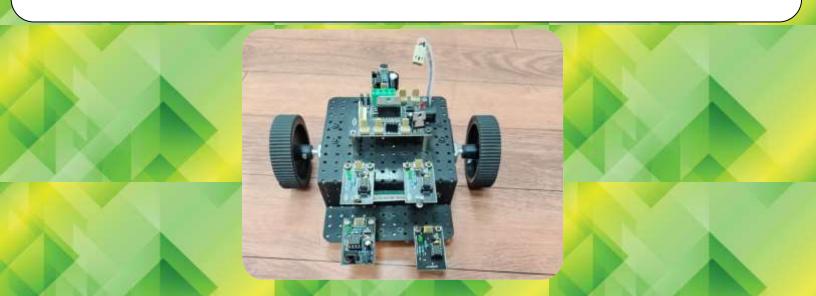


At the Rajyotsava 2024, Atal Bihari Vajpayee Vishwavidyalaya's stall stood out with its impressive array of student-led innovations, particularly in the fields of AI and IoT. These models highlighted the university's strong focus on cutting-edge technology and practical applications. Here's a closer look at some of the standout exhibits:

**Educational Robot with 5-Axis Moving Arm:** This model, based on ATmega 128, is an educational robotic arm that showcases basic mechanical design concepts. It offers hands-on learning in servo motor interfacing, wireless control, and graphical TFT interfacing. The arm's 5 degrees of freedom (DOF)—representing the rotating base, shoulder, elbow, wrist, and gripper—allow for complex movements and interactions, making it a fantastic tool for teaching robotics and control systems.



**Basic RoboCar:** Designed for electronics students, this RoboCar does not require a microcontroller to operate. It is equipped with various sensor modules that allow it to sense and react to its environment. Its capabilities include fire sensing, clap sensing, light detection, object following, obstacle avoidance, and more. The RoboCar can be interfaced with microcontrollers for advanced functionality, making it a versatile platform for learning and experimentation.



**AI+IoT Builder Workstation:** This system is designed to run multiple neural networks simultaneously, making it ideal for applications in image classification, object detection, speech processing, and segmentation. The system leverages TensorFlow for machine learning and deep learning, and supports high-performance services like object and face recognition through image processing. With support from NVIDIA JetPack, this platform enables real-time sensor interfaces, deep learning, computer vision, and more, offering immense potential for research and practical development in AI and IoT.



**Arduino Compatible Interface Module:** This platform uses ATmega328P microcontrollers and provides a convenient way to teach the principles of Arduino and AVR microcontrollers. It serves as an educational tool for both beginners and experts, enabling the creation of projects in fields like telecommunication, robotics, and consumer electronics. The platform allows for both programming and interfacing with microcontrollers, making it an excellent tool for hands-on learning and experimentation.



**Smart Building Training Setup** This setup explores the concept of smart buildings, focusing on energy management and security. Equipped with a variety of sensors, the system demonstrates how data from these sensors can trigger events such as switching lights on and off, activating alarms, or providing access via RFID tags. This innovative setup not only helps understand the role of IoT in optimizing energy consumption and improving security in buildings but also highlights the growing importance of smart infrastructure in modern society.



Raspberry Pi: is a small, affordable, single-board computer that has gained immense popularity among educators, hobbyists, and developers due to its versatility and accessibility. It was initially developed by the Raspberry Pi Foundation in the UK, with the primary goal of making computing and programming more accessible to people, especially students, and encouraging the teaching of basic computer science in schools and developing countries.





AI-संगी is an innovative humanoid robot developed by Ujjwal Matoliya and Shiva Soni, under the guidance of Dr. H.S. Hota. It uniquely integrates advanced technology with the cultural heritage of Chhattisgarh. Powered by a Raspberry Pi, AI-संगी features a speaker, microphone, Bluetooth module, and camera, enabling it to perform various tasks like serving tea, coffee, and files in office and hospitality settings. Additionally, it enhances security by conducting night patrols and monitoring surroundings. Controlled remotely via VNC, AI-संगी offers flexibility and efficiency, making it a valuable asset blends tradition with modern technological advancements.

आईमिता (An AI Tutor for AI Literacy in Chhattisgarh) has been developed under the Chhattisgarh AI Project to promote AI literacy and the AI ecosystem in the state. The project was developed under the guidance of Prof. A.D.N. Bajpai, Vice Chancellor of Atal Bihari Vajpayee University, with the cooperation of Shailendra Dubey, Registrar, and the leadership of Prof. Dr. H.S. Hota, Head of the Department of Computer Science and Applications. The primary objective of this project is to raise awareness about AI among the people of Chhattisgarh. Various initiatives such as educational workshops, seminars, and other programs will be conducted to promote innovation and AI-based startups. The goal is to ensure that knowledge of AI reaches every section of society, whether students, teachers, government employees, or the general public.









# VISIT OF HON'BLE CM

























### **AWARENESS OF CHHATTISGARH AI**

At Rajyotsava-2024, students from Atal Bihari Vajpayee Vishwavidyalaya played a key role in spreading awareness about the Chhattisgarh Artificial Intelligence (AI) Initiative, emphasizing its transformative potential for the state. This initiative, spearheaded by Dr. H.S. Hota, Professor & Head of the Department of Computer Science and Applications at the university, is a forward-looking vision designed to educate, sensitize, and advance the field of AI within Chhattisgarh.

The Chhattisgarh AI Initiative is a comprehensive program aimed at introducing AI as a core element of technological advancement for the state. It seeks to foster a deep understanding of AI's potential and its applications in various sectors, from education to industry, agriculture to healthcare, and beyond. The initiative aligns with the state's long-term vision for progress, encapsulated in the theme "Amritkaal: Chhattisgarh Vision @2047."

Objectives of the Chhattisgarh AI Initiative

**Sensitize the Community to AI:** Raise awareness among students, employees, teachers, and the general public about the vast potential of AI and its role in shaping the future of Chhattisgarh.

**Organize AI Sensitization Workshops:** Conduct workshops across the state to provide a platform for individuals to learn about AI, its uses, and its transformative power. These workshops will be targeted at students, educators, professionals, and government officials.

**Identify AI Talent:** Spot and nurture AI talent within Chhattisgarh by recognizing individuals who show potential in the field and providing them opportunities for growth and development.

**Promote AI in Education & Research:** Integrate AI into the teaching-learning process, encourage AI-related research, foster innovation in AI, and support the establishment of AI startups in the state.

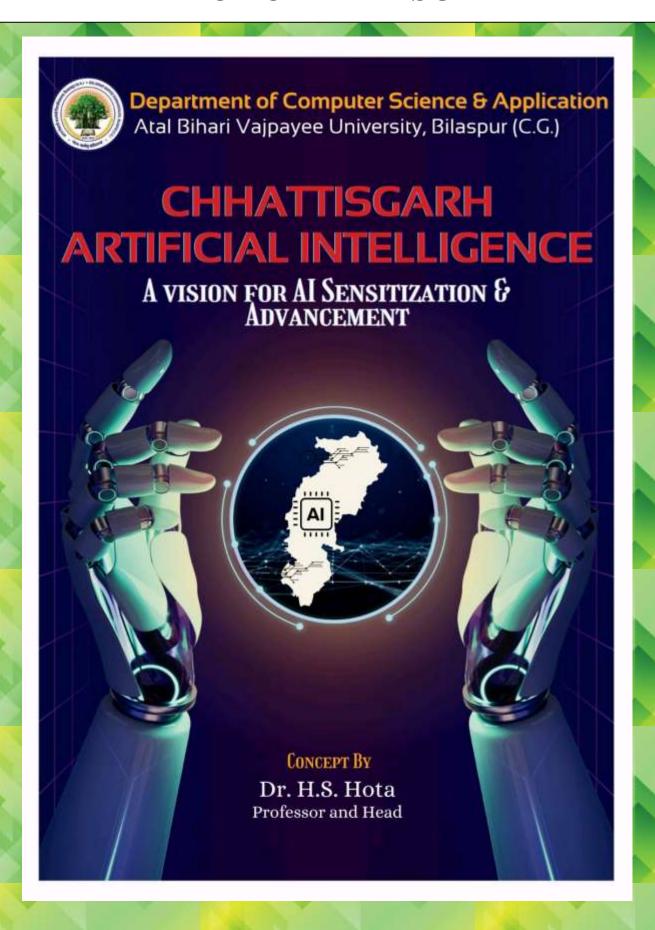
**Foster Global AI Collaboration:** Build partnerships with global AI companies and research institutions to exchange knowledge, share best practices, and collaborate on innovative AI projects that benefit Chhattisgarh.

**Create AI Opportunities:** Provide opportunities for the youth of Chhattisgarh to engage with AI through education, training programs, and job opportunities in the AI ecosystem.

**Support State Government in Building AI Ecosystem:** Assist the Chhattisgarh government in building a robust AI ecosystem, which includes AI infrastructure, policies, and initiatives aimed at driving innovation and sustainable growth.

**AI Training for Diverse Communities:** Provide specialized AI training programs for various community groups, ensuring that knowledge of AI is accessible to all, regardless of profession or background.

The participation of Atal Bihari Vajpayee Vishwavidyalaya at Rajyotsava-2024 was just the beginning of a larger movement to make Chhattisgarh an AI-powered state. With continued focus on education, innovation, and global partnerships, the Chhattisgarh AI Initiative is set to drive the state toward a bright and technologically advanced future by 2047.





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#### **Executive Summary**

The Chhattisgarh Artificial Intelligence (AI) Initiative, led by the Department of Computer Science and Application at AtalBihari Vajpayee University, is a strategic vision aimed at sensitizing, educating, and advancing the field of AI in Chhattisgarh. Following are the Introduction, objectives, proposed activities, expected benefits and implementation for this initiative.



#### Introduction:

Artificial Intelligence is one of the most transformative technologies of our time, and its applications span various sectors, from healthcare to finance. Recognizing the importance of AI, the Department of Computer Science and Application at AtalBihari Vajpayee University proposes the establishment of the Chhattisgarh AI Initiative.

#### Objective:

The primary objective of the Chhattisgarh Al Initiative is to:

- Sensitize students, employees, teachers, and the community to the potential of Al.
- Organize Al sensitization workshops.
- Identify AI talent and professionals in Chhattisgarh.
- Promote Al-related Teaching-Learning, research, innovation, and startups.
- Foster global collaboration with Al companies.
- Create opportunities in AI.
- Support the Chhattisgarh government in building an Al ecosystem.
- Provide Al training to diverse community groups.

#### **Expected Outcomes:**

The Chhattisgarh Al Initiative is expected to yield the following benefits:

- · Enhanced Al awareness and education in the state of Chhattisgarh.
- Advancement in AI research and innovation in the state of Chhattisgarh.
- Increased opportunities for students, professionals, and entrepreneurs in the state of Chhattisgarh
- · Positioning Chhattisgarh as a hub for Al development and collaboration.



CHHATTISGARH ARTIFICIAL INTELLIGENCE (AI)

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#### Activity proposed:

To achieve the objectives, the following activities are proposed:

#### [1] Regular Al sensitization workshops

- Organize regular workshops to introduce Al concepts to a broad audience.
- · Invite industry experts to speak on Al trends and applications.

#### [2] Identifying local AI talent and research opportunities.

- · Establish connections with local Al companies.
- Collaborate with AI professionals from Chhattisgarh.
- · Identify AI researchers in the state and promote their wo

#### [3] Al in Teaching-Learning

- Introduce Al courses in the curriculum.
- · Encourage faculty to engage in Al research and teaching.
- · Promote student projects related to Al.

#### [4] Establishing an incubation center for Al startups.

- · Create an incubation center for AI startups.
- · Provide mentorship and resources to Al entrepreneurs.
- Foster a culture of innovation and entrepreneurship in the Al domain.

#### [5] Creating partnerships with global Al companies.

- · Establish partnerships with leading Al companies globally.
- Facilitate faculty and student exchange programs with renowned AI institutions.

### [6] Recommending Al policy and infrastructure development to the state government. If required.

- Provide recommendations and support to the state government in Al policy and infrastructure development.
- · Assist in setting up Al research centers and labs.

#### [7] Developing Al training programs for various community groups.

- Develop Al training programs for various community groups.
- Ensure inclusivity in Al education to bridge the digital divide.

#### Conclusion

The Chhattisgarh Al Initiative is poised to make significant strides in advancing Al knowledge and applications within Chhattisgarh. By sensitizing the community, fostering research and innovation, and creating opportunities in Al, we aim to contribute to the growth and development of our state and the nation at large.

We invite stakeholders, partners, and the academic community to join us in this transformative journey toward a brighter future powered by Artificial Intelligence.





CHIHATTISGARH ARTIFICIAL INTELLIGENCE (AI)

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Chhattisgarh's Al initiative by the department is inspired by the broader vision of IndiaAl, represents a forward-looking approach that aims to position the state as a hub for Al innovation and sustainable development. The collaborative efforts of the government, academia, industry, and the public play a pivotal role in shaping the future of Al in Chhattisgarh.

### **Proposed Activity**

#### [1] Research and Development:



- Established collaborations with leading academic institutions, research organizations, and industry partners to promote cutting-edge Al research.
- Focuses on addressing region-specific challenges and leveraging AI technologies for the benefit of the state's economy and society.

#### [2] Skill Development:

- Recognizing the critical role of a skilled workforce in Al adoption.
- Provide professionals, entrepreneurs with the necessary knowledge and skills in AI, ensuring that the state has a workforce capable of driving AI innovations.



#### [3] Startup Ecosystem:



- Conducive ecosystem for Al startups.
- mentorship programs, and streamlined regulatory processes to encourage the growth of Al-driven ventures within the state.



















