Tech Trio Triumphs: IIIT Allahabad Students Win Inaugural Adobe Gensolve Hackathon 2024

The first-ever Adobe Gensolve Hackathon concluded with an electrifying finale at Adobe's Noida campus on September 13, 2024, where a team of engineering students, Om Buddhadev, Tanay Falor, and Shubham Gupta, from IIIT Allahabad clinched the first place. Competing against over 100,000 students from over 400 colleges across India, their innovative solutions stood out in a competition designed to test the brightest minds in Image Processing and Artificial Intelligence.

A Competition Like No Other

Adobe Gensolve, open to all colleges in India, attracted a massive turnout. The hackathon was structured in three rounds, each testing different aspects of computer science expertise. The top teams from premier institutions, including IIT Guwahati, IIT Roorkee, VIT Chennai, MAIT Delhi, IIIT Allahabad, and NIT Jamshedpur, advanced to the final round.

Round 1: The Online Assessment

The journey began with an online test assessing Data Structures and Algorithms (DSA) and core computer science subjects like Operating Systems, Databases, and Computer Networks. Participants who scored above 60% progressed to the second round, demonstrating their technical prowess in computer science fundamentals.

Round 2: Project Round 1 - CurveTopia

The second round introduced a real-world challenge involving geometry and image processing. The teams were tasked with creating a solution to identify, fix, and complete broken curves in 2D space, addressing scenarios where parts of the curves were hidden or missing. The winning team developed "CurveTopia," a sophisticated tool that:

- Identified shapes using advanced image processing techniques.
- Regularized curves by smoothing and eliminating noise.

- Filled in missing parts using symmetry-based B-splines and variations of the Hough Transform.

Six teams were chosen for the grand finale from this round, with all travel and accommodation expenses covered by Adobe.

Round 3: Project Round 2 - GameSense

In the final challenge, participants had to build "GameSense," an AI-powered system designed for the real-time analysis of badminton matches. This task demanded a combination of mathematics, computer vision, and AI expertise. The winning team's solution included:

- **Player and Shuttlecock Detection:** Using the YOLO AI model, they tracked players and the shuttlecock's movement during matches.
- **Court and Net Detection:** The team deployed RCNN to detect the court lines and net accurately.
- **Trajectory Smoothing:** By implementing Kalman filtering, they tracked the shuttlecock's movement even when it was obscured momentarily.
- **Shuttlecock Speed Calculation:** The system translated pixel movements to real-world distances, providing speed analysis.
- **Player Tracking and Live Commentary:** The AI tracked player movements for singles and doubles, generating live commentary and match updates in real time.
- **Optimized Performance:** The team used threading techniques to ensure the system ran seamlessly, handling multiple processes simultaneously.

Final Presentations and Recognition

The final presentations were judged by a distinguished jury consisting of Fellow, Core Technologies and Products, Senior Principal Scientist and Senior Director, Media and Data Science Research Lab, Director of Design, and Senior Principal Scientist, Adobe Document Cloud, Adobe.

Competing against teams from premier institutions such as IIT Guwahati, IIT Roorkee, VIT Chennai, MAIT Delhi, and NIT Jamshedpur, the winners showcased exceptional innovation and technical skill.

A Triumphant Finish

The team's remarkable achievements earned them the top spot, underscoring their technical brilliance and creative problem-solving skills. Their success in the inaugural Adobe Gensolve Hackathon sets a high benchmark for future participants and highlights the growing talent in India's engineering landscape.

The winning team members expressed their gratitude and excitement, stating that the hackathon challenged them and provided an invaluable experience in applying their skills to real-world problems.


Adobe