Intel® Unnati
Data-Centric Labs in Emerging Technologies

Give Your Students the Intel Edge.

intel.

Applied AI

Today, there is a wide, and growing, skill gap between technical graduates and IT industry expectations. **To propel India's digital economy transformation, it is imperative that the higher education system in the country bridges this gap by developing new curricula and offering courses in emerging technologies.** The National Education Policy 2020[1] recognises this, and stresses the need for greater industry-academic linkages, and for higher education institutions to focus on research and innovation.

With the **Intel® Unnati Program**, you can keep pace with fast changing industry needs and expectations. It will help you:

Equip your students with industry relevant data-centric skills

In this age of data explosion, there is immense opportunity. Give your students the edge by equipping them with data-centric skills that will help them glean better insights and develop high-value solutions.

Unleash your students' creative potential

We, in India, have an incredible opportunity to unleash the creative potential of the largest student population in the world by training them in the right skills to drive India's digital transformation.

Build a strong reputation

With an Intel co-branded lab, you can be recognised as an institute that is committed to train your students in the latest technology to prepare them for industry, and focus on faculty development.

Build capability for the long term

Establish and maintain your leadership with the help of our **System Integrator Associates**. From Intel's recommendations for end-to-end Technology Labs set up and course content to training, customisations of your lab set up, or your maintenance and support requests, you can rely on them for all your needs.

Winning with the Intel® Unnati Community

With an Intel® Unnati Lab, you—and your faculty and students—become part of the **Intel® Unnati Community**, and get exclusive benefits:

- **Intel® Unnati Grand Challenge** and **Intel® Unnati Rapid Challenge**, which inspire your students to work in teams to solve industry relevant, high impact problems through technology, with cash awards to be won and the opportunity to be evaluated for internships at Intel
- **Intel® Unnati Ignite** workshops that offer your students and faculty hands-on experience with Intel technologies
- **Intel® Unnati Catalyst** sponsorships for select tech contests and events that you conduct, where you encourage and accelerate the use of new and emerging technologies

[1] Ministry of Human Resource Development, Government of India, National Education Policy 2020, *https://static.pib.gov.in/WriteReadData/userfiles/NEP_Final_English_0.pdf*

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Tackling Urban Mobility

The pressures of growing populations, increasing vehicle volume, and aging, physically constrained transportation infrastructure are creating an urban gridlock that impacts productivity, public safety, and public health.

Cities are using technology to improve traffic flow and public safety on existing roadways and extracting insights that are informing traffic engineering and infrastructure improvements.

Road Safety in the Indian Context

Per the Government of India's MyGov website[2], India still ranks first in the number of road accident deaths across 199 countries, and accounts for almost 11% of all accident-related deaths in the world. The Government is taking road safety as a top priority and is endeavouring to reduce road accidents by 50% by 2024; and it sees significant opportunities for the
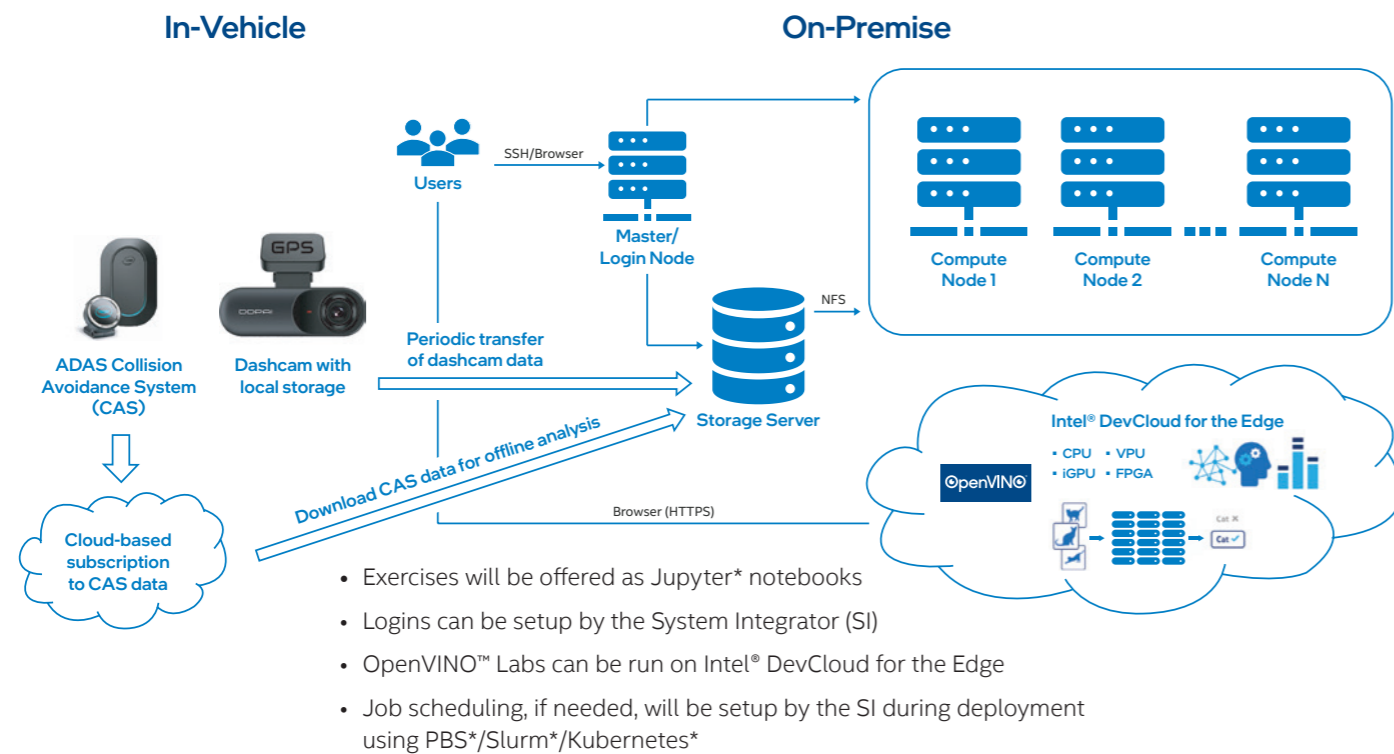
application of AI-driven technologies to remove human interference and the possibility of errors, thereby improving efficiencies and safety in traffic movement.

Advanced Driver Assistance Systems (ADAS)

ADAS systems are electronic systems that use AI and other advanced technologies to assist the driver. With features such as Collision Warning, Pedestrian Detection and Lane Departure Warning among others, these systems minimise human error and reduce road fatalities. With a vision of fewer crashes and mobility for all, Intel is developing ADAS systems as the building blocks for the future of autonomous driving

[2]https://www.mygov.in/campaigns/national-road-safety/

High-Level Design

In-Vehicle

On-Premise

- Exercises will be offered as Jupyter* notebooks
- Logins can be setup by the System Integrator (SI)
- OpenVINO™ Labs can be run on Intel® DevCloud for the Edge
- Job scheduling, if needed, will be setup by the SI during deployment using PBS*/Slurm*/Kubernetes*

Key Benefits

For Institutions

- Build hands-on exposure to AI technologies driving Smart Mobility and next generation AI-based Mobility solutions
- Leverage Applied AI infrastructure across multiple engineering disciplines
- Learn about Indian datasets for AI and challenges in data collection
- Contribute to building India-specific datasets for Smarter and Safer Mobility (e.g., GreySpot map for India)

For Students

- How modern AI techniques are driving next generation vehicles
- How infrastructure safety can become more predictive with data
- How India can lead the world with unique AI datasets and applications

Applied AI Lab in Mobility

For institutions that are seeking to equip students from across engineering disciplines with foundational concepts of building Smart Mobility solutions with AI

Minimum Suggested Specifications				
Hardware				**Software**
• 25 x Collision Avoidance Systems (CAS)	Intel Onboard Smart Mobility Solution – SafetyPro – powered by Mobileye* 8 Connect			• Intel Onboard Cloud access for alerts
• 5 x Dashcams	DDPAI Mola N3 Car Dash Camera with GPS Bracket, 2K+ 1600P UHD, 5MP, F1.8 Aperture, 140° Wide Angle, WiFi, 1GB RAM, 128GB Storage			• Cloud access to contribute to GreySpot Map
Server/Workstation	**Component**	**Product Description**	**Quantity per System**	• Ubuntu* 18.04
• 1 x Master Node	Memory	32GB RDIMM, 2 Rank, 3200MHz	16	• Intel® oneAPI Base Toolkit
	Management Key Options	Advanced System Management Key	1	• Intel® AI Analytics Toolkit
	Power Supply	1600W Power Supply	2	• Horovod* + Intel® MPI (for distributed DLtraining with TensorFlow*)
	Processor	Intel® Xeon® Silver 4310	2	
	Heatsink Option	Tall Heatsink CYP2UHSSTD	2	
	Riser Card 01	2U Riser Card CYP2URISER1STD	1	
	Riser Card 02	2U Riser Card CYP2URISER2STD	1	• Intel® Extension for PyTorch* (IPEX)
	Riser Card 03	2U Riser Card CYP2URISER3STD	1	
	Rail Option	FullExt.RailKit CYPFULLEXTRAIL	1	• Intel® Distribution of OpenVINO™ Toolkit
	Server System	Intel® Server Sys M50CYP2UR312	1	
	Raid Controller 1	RAID Adapter RSP3WD080E	1	• JupyterHub* and JupyterLab*
	Networking IO Modules	X710-T2L for OCP 3.0	1	
• Minimum 2 x Compute Nodes	Memory	16GB RDIMM, 2 Rank, 3200MHz	16	• Keras*, ipykernel*, Seaborn*
	Management Key Options	Advanced System Management Key	1	+ other libs as required by exercises
	Power Supply	1300W Power Supply	2	**Note:**
	Processor	Intel® Xeon® Gold 6330	2	Check *https://software.intel.com/* containers for available AI containers
	Riser Card 02	1U Riser Card CYP1URISER2STD	1	
	SATA Cable	Cable Kit CYPCBLHDHDXXX1	1	
	Rail Option	FullExt.RailKit CYPFULLEXTRAIL	1	
	Server System	Intel® Server Sys M50CYP1UR204	1	
	Front Bay 1, Drive 01 Vend	960GB 2.5 SATA 1DW S4510	1	
	Networking IO Modules	X710-T2L for OCP 3.0	1	
• 1-2 x GPU Cards	Please contact your System Integrator for GPU recommendations			
• 1 x Storage Server	2 TB space (or as per requirements)		1	
• Network Router with 10Gbps Ports, Network Switch, Rack Cabinet, Power Delivery Unit (PDU) and Patch Cables				
• Software for job scheduling and queueing				
• Intel® OpenVino™ labs will be run on Intel® DevCloud for the Edge				

To know more about how your institution can benefit from the Intel® Unnati Program, please contact:

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