



Altair Virtual Internship & Placement assistance Program for SAE Formula Bharath students

Altair is at the forefront of current and future technology, has a strong customer base across many verticals like Auto / Aero / Defence / Consumer Goods / Banking...etc. The demand for talented human resources is never ending. In this regard Altair has come up with Altair **Industry outreach** (IOR) Initiative which is a platform to connect Students, Industry, and academia. So, any students who certified in our Courses via Altair university portal will be invited to participate and update profile in industry outreach portal which is connected to Team leaders and HR's of 65+ Customers of Altair. This helps visibility and job opportunity. With this initiative, we were able to place 350+ candidates since 2019 (20+ In Altair).

But this initiative needs more quality as demanded by our IOR customers, hence we started offering virtual internship Program to students to elevate the skillset. Here we wish to invite candidates from Formula Bharath 2023 as they are the best students to bank on. Here student can choose start-and-end date as per his academic Convenience for virtual internship > pick a Industry project > work on the inputs given and submit the report > have interaction with experts during the internship. This extra step helps students to be nearer to the industry requirements. This also gives an extra credit score at your college and in Industry outreach star rating. So, we invite students to Apply by sending email request.

Procedure:

- 1) **Get Altair Software Sponsorship:** We provide Commercial Grade license to the Teams. All Formula Bharat participating teams can apply. First 25 Teams to get 10000 INR as sponsorhsip.
<https://www.altair.com/technology-sponsorship-request>
- 2) **Build Tool Competency:** via Instructor led training course (Free to everyone)
<https://learn.altair.com/> or
<https://certification.altairuniversity.com/course/index.php?categoryid=63>
- 3) **Apply for Virtual Internship:** After receivein sponsorship, One team member will get Virtual Internship for competanyc development. Get Altair merchandise. 25 Slots available! Altair University Certified students will be Preferred.
 - No Stipend & No Fee; Applicable to existing students only. Passed out students are not eligible.
 - Duration flexible to Academic requirements. Multiple Internship at same time is not allowed.
 - No need to visit Altair Office for Virtual Internship
 - Students need to do an Industry Standard Project on the desired domain of Interest like Crash, MBD, CFD, Optimization, Data Science, NVH...hence it is desired to have Altair Certified students for Virtual internship.
- 4) **Financial Sponsorship Alike:** Altair Global Student Contest and win prize every month 1,050 \$:
<https://web.altair.com/global-student-contest-2023>

Additional Info on Free Collaterals:

- Free Academic License: <https://altairuniversity.com/free-altair-student-edition/>
- Software Installation Procedure: <https://www.youtube.com/watch?v=Lp3zAFPRFII>
- Free Learning Courses: <https://certification.altairuniversity.com/>
- Free Instructor led training <https://learn.altair.com/>
- Free eBooks: <https://altairuniversity.com/free-ebooks/>
- Learn from YouTube Videos: <https://www.youtube.com/c/AltairHowTo>
- Student Courses Guide: <https://altairuniversity.com/student-guide/>
- Global Webinar Series - Student Learning Event 2022: <https://web.altair.com/2022-altair-student-learning-event>

Note: If a faculty likes to have Altair Solutions as part of curriculum requirements and/or wants to use the tools to teach students as part of lab component, we can issue lab Academic license to your college Free! Any support, please reach out to rambs@altair.com

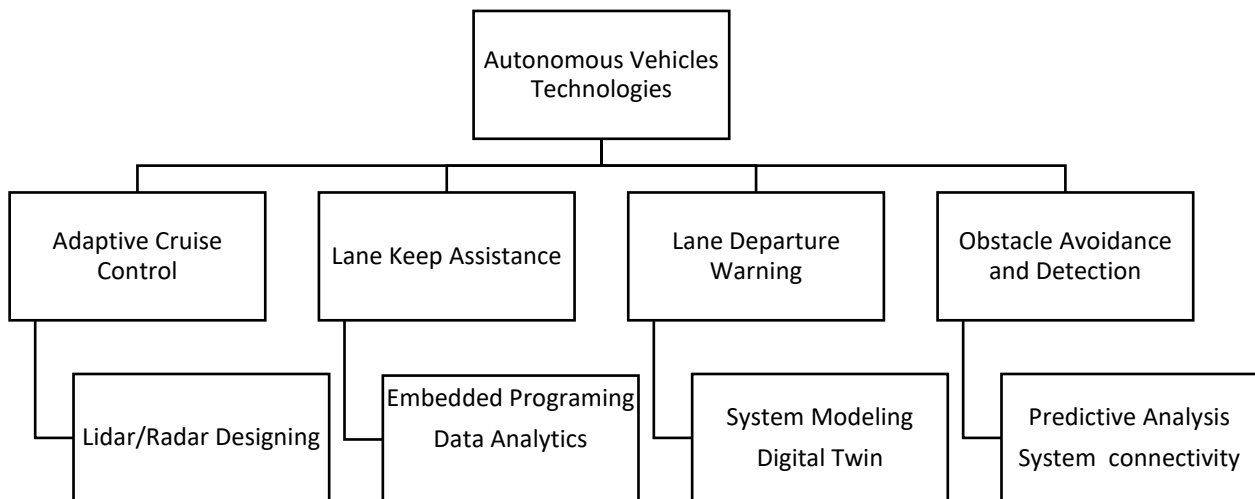
Training Program

(Manoj KV and team)

Preface:

- Autonomous vehicles are self-driving cars that operate without human intervention.
- They use advanced sensors and technologies to perceive the environment and make decisions.
- Their development aims to enhance safety, efficiency, and accessibility in transportation.

Autonomous Vehicles can be categorized based up on the below technologies:



Autonomous vehicles (AV) and advanced driver assistance systems (ADAS) bring increased complexity and a need for more testing. Exploring all the required scenarios within product development timing requires advanced simulation and the application of high-performance computing (HPC). Altair technology enables customers to deliver solutions that makes cars and trucks safer today and on the road to driverless mobility.

Training:

The above systems can be comprehensively covered by following learning modules along with simulation techniques:

- **Integrated system-of-systems simulation connecting 0D,1D and 3D co-simulations:**
 - Explore the virtual system level modelling connecting multiple physics to build the complex vehicle. Further, build virtual controls system for various technology like *obstacle detection, cruise control, collision avoidance* and *emergency braking* etc.
 - Utilize the flexibility by connecting with Virtual reality engines like Unreal engine, Carla. Validate various scenarios in *Carla*, an autonomous driving research engine.
- **Embedded system design & Open Vision for ADAS:**
 - Design, analysis and algorithm development for *image and video processing* and *real time implementation*.
 - Develop OpenVision applications including *Lane detection/ tracking, object detection, avoidance, Lane keep assistance* and many others.
 - Automatic Code generation and deployment on Microprocessors like Raspberry Pi and AMD64.

- **Advanced Data analytics & AI/ML with Altair RapidMiner**
 - Data analytics and Machine learning are now an integral part of Autonomous vehicle as self-driving cars need the human brain and eye.
 - Explore AI/ML starting from easily prepping the data from any source, developing models to production and process massive data generated over the tests.
- **Enabling real-time Digital twin for Autonomous Vehicles**
 - ***Keeping control of your product using Altair's one Total Twin™*** - Stream data from IoT sensors in real time, use advanced AI/ML and/or dedicated physics driven modelling approach to **monitor and predict the behavior of your vehicles live and in real time!**
 - Learn how the Digital twin of your physical asset is done to prevent failures, to monitor during operation and to perform better diagnostics & take informed decisions.
- **Radar Antenna design and integration**
 - Apply wide array of engineering for antennas, from design to placement to communication.
 - Accurately simulates radar antenna design & integration aspects, including radome and bumper effects including a solution for ultrasonic sensors.
 - Explore 5G Antenna Design and Placement, 5G wave propagation models & ray-tracing for the next generation connectivity.
- **Virtual Drive Tests for ADAS Radar Sensors and Communication Antennas**
 - Apply full environment including buildings, cars, street objects to get accurate representations of the radio waves impinging on the antennas and the multipath radar channels including reflections, diffractions, and scattered contributions.
 - Allows realistic and fully reproducible evaluations of different options for the antennas and sensors including their integration and configuration.
- **Advanced Simulations to assist development of Autonomous Vehicles**
 - Electrical & Electromechanical device simulations using Altair Flux
 - Learn virtual development using CFD for autonomous vehicle design improvement.
 - Advanced Structural analysis & Optimization
 - Efficient Product development with simulation driven rapid design.

Tools and technologies from Altair:

- Altair Feko®
- Altair WinProp
- Altair Compose®
- Altair Activate®
- Altair romAI
- Altair Embed®
- Altair RapidMiner®
- Altair Flux
- Altair Acusolve
- Altair Inspire & SimSolid
- Altair OptiStruct & Radioss