**CPI :- 7.04/10**

**SUMMER INTERNSHIP**

* **Designed and Development of flexible wing RC Powered Hang Glider, National Aerospace Laboratories, Bangalore** (May – July 2011)
* Designed a 1/5th scaled model
* The model was fitted with various sensors for measuring the flight data
* Comparison of this data with available mathematic model
* Correction of mathematic model to fit the available flight data.
* Ant Colony optimization for design of filters used in denoising gas turbines signals, **IISc Bangalore**

(Guide: Prof. Ranjan Ganguli)  *(June – July 2010)*

* Engineered ant colony optimization approach for finding **Optimum Weights** of median filters
* Improved the current jet engine **Health Signal Denoising** by about **40 %** with improvement in simulation time by about **5-10 %**
* Innovated use of ant colony algorithm in problems having solution construction by repetitive selection from solution space
* The research done is in process of publication in **International Journal of Gas Turbine, ASME**

**PROJECTS**

* **ABU ROBOCON 2011**  *(Aug 2010 – March 2011)*
* Robocon is the **Asia’s biggest Robotics competition** with an objective of building manual and autonomous robots for completing pick and place tasks
* Secured 2nd position along with Best Autonomous Machine and Best innovative Design
* Currently playing a pivotal role in the Electronics and Automation Division of the IIT Bombay entry in the competition
* Responsible for **Designing, Prototyping, Development** and **Integration** of Electronic Systems in the machines. Also responsible for firmware development for the machines
* **BIPEDAL ROBOT**  *(Aug 2009 – present)*

An autonomous two legged robot with **12 axis degree of freedom**

* **Designed** and **fabricated** the assembly model of entire machine.
* **Conceptualized** and **simulated** the entire mechanical design of BIPED on Solid works.
* Devised control law for **autonomous control** of 12 motors at same time
* Currently working on optimization of weight by **FEM modeling** of its parts in ANSYS
* The robot was aired in a commercial on national television
* **AUTONOMOUS ROOM NAVIGATOR** *UMIC, SINE LAB (June 2009)*

An autonomous robot that navigates an entire room using analog IR sensors

* Designed and fabricated filtered optical sensors with time response of 50 milliseconds
* Used a **PID control** algorithm for better navigation
* Potential Development as **Autonomous Vacuum cleaner**
* **Navigation and guidance of satellite launch vehicles and satellites** *(July 2009 – Nov 2009)*

(Guide: - Prof. Hari Hablani)

* Presented a detailed report of guidance strategies and control systems used in the launch vehicles
* Developed a program for generating satellite orbits and orbits of launch vehicles like GSLV
* Identified the advantages of gimbaled navigation system over strap down navigation system
* **PEPSI CAN GRIPPER** *UMIC, SINE LAB (Dec 2008)*

Structured a new design for a modern stationery store with just one official to handle all the operations

* Autonomous Grid navigatorwhich goes to (x, y) as input by the user from the origin and fetches any cylindrical or cubical item as per the customer need.
* Validated and characterized **four bar mechanism** by proper analysis and prototype building
* The machine was displayed in an exhibition in Techfest 2009.

**SCHOLASTIC ACHEIVEMENTS**

* Achieved an **All India Rank 1365** in Joint Entrance Exam (JEE) conducted by Indian Institute of Technology among 3.5 lakhs students appeared for the examination (**Top 0.25%**)
* Secured **State rank of 185 (National Rank - 2956)** in AIEEE among 7 lakhs students appeared for the examination (**Top 0.3%**)

**SOFTWARE SKILLS**

* Microcontroller Experience: Atmel AVR, ARM, 8051
* Operating System: Windows, Linux
* Programming Languages: C/C++, Python
* Packages used:- CAD/Circuit designing software: Solid Works, Auto CAD, Catia, EAGLE, LTSpice

Other Engineering software: MATLAB, FLUENT, ANSYS, GAMBIT, NASTRAN

**POSITIONS OF RESPONSIBILITY**

* **Technical Secretary,** Hostel 2, IIT Bombay *(2009-10)*
  + Received **Best Office Bearer** for 2009-10 in Hostel Council
  + Spearheaded hostel to **1st position** inTechnical General Championship for the **first time ever**
  + Revived hostel technical scene by conducting lectures and workshops
  + **Mentored** a strong freshmen batch of about **225** students
* Active Member of **UMIC,** theInnovation cell of IIT Bombay which promotes innovation in robotics and applied science

**AWARDS & ACHIEVEMENTS**

* Awarded the **Institute Technical Special** **Mention** for overall excellence in technical activities [2010]
* Received **Hostel Color** for exceptional organizing qualities in managing the hostel technical scene [2010]
* Awarded **Hostel Technical Color** for securing victory in Inter Hostel Technical Championship [2010]
* Presented with **Hostel Technical Special Mention** for excellent technical performance on 1st year [2009]

**EXTRA CURRICULAR**

* **Lectured** the students of **“Vartak College”** on basic robotics
* Selected as the **team leader** for a **Social Service Camp** organized by the Institute
* **Performed** in a play as a part of **Wild Life Club Campaign** for “Conservation of Forest
* Part of winning team in Inter School Cultural Camp held at Noida, Delhi. Secured **1st** position in group dance and folk dance competition (2005)