**ANANTHA N. RAO**

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**EDUCATION**

**University of Cincinnati,** CEAS **Cincinnati, OH**

**M.Sc., in Mechanical Engineering |** GPA: 3.27/4 **Expected August 2020**

Specialization: Product Design, Intelligent systems (AI, Machine Learning),

Optimal control, Decision Engineering, Modern Control

**SRM University,** College of Engineering **Chennai, India**

B.Sc., in Mechanical Engineering | GPA: 8.64/10 **November 2015**

Specialization: Automation, Product design, Machines and Mechanisms

**SKILLS**

**Technical Skills:** MATLAB, Simulink, CATIA, SolidWorks, Ansys, Python, OpenCV, Tensorflow(CUDA), Keras, SimuLink modelling, MS Office tools, Computer Vision, Control system design, Kalman Filters, 3D modelling, Data analysis, Machine learning.

**Courses:** Intelligent systems (ML/AI), Optimal control (Optimizations), Decision Engineering (Bayesian Processes, Sensor Fusion), Modern control (Kalman Filters, Multi-agent control), Complex Systems and Networks, Introduction to Robotics.

**Languages:** Fluent in English, Tamil, Kannada, and novice in conversational Japanese.

**ACADEMIC PROJECTS AND ACHIEVEMENTS**

* **Monocular Learning-based Visual Odometry –** Thesis project currently worked on, employed feature matching and deep learning on temporal monocular frames to formulate a generic algorithm for state estimation. (OpenCV, Tensorflow, Python, Computer vision, Modern Control).
* **Point cloud generation from DFD –** Emulated the existing Depth by Defocus method on Canon telephoto lens to analyze better implementation techniques. (OpenCV, Python, Computer Vision).
* **Indoor 3d mapping using stereo vision** –Matlab implementation of stereo vision for better understanding of pixel-matching techniques. (Image processing, Computer Vision)
* **Handwriting recognition –** Matlab implementation of Multi-layer Neural network for character recognition. (Intelligent systems, Machine Learning)
* **Self-balancing cube –** Designed and developed an LQR controller for a self-balancing semi-stable cube (Cubli). (Matlab, Simulink, Solid works, Optimal control)
* **Automated garbage collector** – Applied concepts from Machines and Mechanisms to design, simulate and fabricate an Automated garbage collector. (CATIA, ANSYS)
* **Stir-fry machine** – Proposed an automated workflow to reduce human interactions in food preparation in Panda Express. Worked through mechanism design, product design and assembly, and cost analysis report. (Solidworks, Concepts from Introduction to Robotics).
* **Self-forming swarm –** Implemented concepts from Decision Engineering and Complex systems and Networks to simulate swarm robots into strategic self-evolving pattern adherence. Worked on algorithms for path planning and obstacle avoidance.
* **Bicycle Dynamics –** Studied bicycle dynamics and design methodologies for obstacle avoidance in motorcycles, as a part of undergrad thesis. (Solidworks, Machines and Mechanisms, Fluid Power Control, Arduino implementation).

**WORK EXPERIENCE**

**University of Cincinnati (Public safety) August 2017- Current**

**Operations Coordinator**

* Managed operations of a public safety program *(Nightride)* which enables safe student transits around the campus.
* Worked on onboarding, training and assessing new employees into the program.
* Act as a point-of contact between the students and the community safety manager.
* Analyzed performance metrics of nightly operations and provide recommendations on improvements on a daily basis.
* Collaborated as a team in policy revision and other key decision-making processes.

**Airwalk Publications Chennai, India**

**Engineer – Tech Publication November 2015 –May 2016**

* + Reviewed and analyzed thesis research projects with industry potential in areas such as Control Systems and Strength of Materials.
  + Built new systemic academic books and study materials panning across subjects inclusive of Product Design, IC Engines, Thermodynamics and Strength of Materials, currently under use across Universities in South India.
  + Conceptualized prospective and new directions for academic research materials showcased at Satyabhama University.
  + Worked on an extensive potential customer outreach program to increase marketability of the products.
  + Compiled contents from multiple authors and ensured conformance across all textbooks.

**BizTech Solutions Inc. Bangalore, India**

**Branch Supervisor August 2015 – October 2015**

* + Supervised and managed payroll operations of SAP consultants working across various implementation projects.
  + Interviewed, assessed and assisted on hiring new data mining engineers for new projects in upcoming quarters.
  + Organized and set up operations of a new BizTech branch office in Bangalore.
  + Developed a workflow for streamlined on-boarding of new employees into the company.
  + Created, planned and executed advertising campaigns for online SAP training courses for executives.

**LEADERSHIP AND AFFILIATIONS**

* Headed the design team which created an ergonomic **Hybrid trike** which ranked 13th for design on a National-level event with over 500 participants, India, University of Punjab, Chandigarh, October 2014.
* Managed the fabrication process of a **Solar powered vehicle,** ensuring conformance with the design and the necessary safety factors for the national level event Electric Solar Vehicle Championship, ISNEE, Hyderabad, India, October 2014.
* Spear-headed a team of 15 people into design, fabrication, and racing of a **Go-Kart**, NGKC 2014, ISNEE, Coimbatore, India, August 2014. Worked extensively on design and documentation process.
* Active member of Mechanical Club, SAE club, and Rotaract club, 2011- 2015.
* Co-founded the Entrepreneurship cell of SRM University, Vadapalani, India, October 2013.
* Coordinated a National-level mechanical engineering symposium in SRM University, 2013.