

Ketan Rachamalla Sachidanand

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PROFILE OF QUALIFICATIONS

- 2+ years of professional academic experience in Programming, CAD, Control Theory, Path Planning and Optimization.
- Expertise in implementing Machine Design, Part Design & Assembly using primarily Solidworks and AutoCAD.
- Self-motivated individual in a quickly changing environment with effective leadership qualities and communication skills.

EDUCATION

MASTER OF SCIENCE: Mechanical and Aerospace Engineering - Dynamics and Controls May 2017
Oklahoma State University - Stillwater, OK

MASTER + BACHELOR OF TECHNOLOGY: Mechanical Engineering - Intelligent Manufacturing Systems May 2014
Jawaharlal Nehru Technological University - Hyderabad, Telangana, INDIA

PROFESSIONAL EXPERIENCE

Graduate Teaching Assistant Jan 2015 - May 2017
Oklahoma State University - Stillwater, OK

- 2+ years hands-on experience with Solidworks.
- Developed design specifications, producing concept designs using both basic and advanced part modeling features, Solidworks Assembly Modeling, Drawings, Sheet Metal, Weldments, and Surfacing.
- Used Motion Analysis and basic FEA for the parts and Assemblies developed.
- Administered 3D printing and CNC Machine Shop utilizing CNC lathes, Mills, and Turning Centers.

Research Assistant Jan 2014 – Jun 2014
Jawaharlal Nehru Technological University - Hyderabad, Telangana, INDIA

- Designed and fabricated a Micro air vehicle based on a Tricopter platform and demonstrated at an international conference.
- Guided Undergraduate students in understanding the dynamics and controls involved in Multi-rotors.

Research Intern Jan 2014 – Jun 2014
Defense Electronics and Research Laboratory – Hyderabad, Telangana, INDIA

- Performed a comprehensive kinematic analysis of universal joint and gimbal.
- Used Solidworks to perform structural analysis and optimization of Gimbals for UAV's.

ACADEMIC PROJECTS

Optimal Trajectory Planning using Multi-objective optimization for Sawyer robot Jan 2017 – May 2017

- Optimized trajectories for a 7-DOF sawyer robotic manipulator using NSGA – 2 (Non-dominated sorting Genetic Algorithm).
- Generated collision free trajectories by taking the obstacle information from sawyer's embedded vision system.
- Implemented the algorithm in Python and ran simulations in Moveit!. The manipulator was controlled using ROS and Python.
- Benchmarked the optimum results obtained and compared to the standard motion planning libraries in Moveit!.

Real-Time Obstacle Avoidance for Manipulators and Mobile Robots Aug 2016 – Dec 2016

- Performed a MATLAB Simulation of real-time obstacle avoidance for a 2-Link planar manipulator.
- Planned trajectories using artificial potential fields in the workspace and controlled the motion of the manipulator by defining operational space.

Hardware in the loop Simulation of an Autonomous Golf Cart Aug 2014 – Dec 2014

- Performed hardware in the loop simulations for an Autonomous Golf cart in V-Rep.
- Modeled sensors (SONARS and LIDARS) for Simultaneous Localization & Mapping (SLAM), and actuators for velocity control to get an estimate of the environment and determine obstacles presence.
- Used MATLAB and V-Rep Simulator for modeling and path planning of the cart using the obtained estimate of area of travel.

SKILLS

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| • Programming Languages: Python, MATLAB, VBA, C++, SQL, HTML, Bash | • Tools: Advanced MS Excel, Jupyter Notebook, Git, TortoiseSVN, Open CV, MySQL |
| • CAD/CAE Packages: SOLIDWORKS, ANSYS, Autodesk Inventor, AutoCAD, Catia, PROE/Creo | • Operating Systems: MS WINDOWS, iOS, ROS, Ubuntu |
| • Simulation Packages: Gazebo, Simulink, Moveit!, V-Rep | • Data Analysis Software: SAS, MS Excel |
| | • Data Visualization: Matplotlib, ggplot2, Tableau, Visio |

CERTIFICATIONS

Solidworks Associate - Mechanical Design by Dassault Systems Solidworks Corporation (**Certificate ID:** C - ZHKMCAKE4M)