Ritwik Ummalaneni

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EDUCATION

NORTHWESTERN UNIVERSITY
MS in Robotics
Dec 2015 | Evanston, IL
Final Project : ElectroLocation using the Oculus Rift
Cum. GPA: 3.72/4.00

VIT UNIVERSITY
BTech in ECE
August 2014 | Vellore, India
Final Project : UAV - system development
Special Achiever (Class of 2014)
Cum. GPA: 8.57 / 10.00

LINKS

Project Portfolio: **www.ritwiku.com**
Github: **www.github.com/ritwik1993**
LinkedIn: **www.linkedin.com/in/ritwiku**

COURSEWORK

GRADUATE
Robotic Manipulation
Advanced Computer Vision
Random Processes in Control
Optimal Control of Non-Linear systems
Machine Learning and AI in Robotics
Advanced Mechatronics
Embedded Systems in Robotics

UNDERGRADUATE
Control Systems
Robotics and Automation
Digital Image Processing
Microcontroller and Applications
Advanced Microcontrollers(ARM,DSP)
Data Structures and Algorithms

SKILLS

PROGRAMMING
Over 10000 lines:
C • C++ • Python • Matlab
Over 1000 lines:
Mathematica

PACKAGES AND LIBRARIES
Extensive
ROS • PCL • OpenCV
Familiar
OpenGL • Gazebo • VRep

TOOLS
Git • Emacs • LaTeX• VisualStudio

EXPERIENCE

AURIS SURGICAL ROBOTICS INC. | Navigation Test Software Engineer
February 2016 – Current | San Franscisco Bay Area, CA

- Designing and prototyping algorithms for the product's navigation system
- Defining and conducting experiments for data collection, algorithm verification and establishing performance metrics for different modules in the system
- Identifying and improvising value propositions for futuristic technologies
- Developing a physics enabled virtual enviroment to enable software in the loop modelling and simulation

AURIS SURGICAL ROBOTICS INC. | Navigation Systems Intern
June 2015 – September 2015 | San Franscisco Bay Area, CA

- Developed Engineered software modules for testing and analysis of real-time control and navigation systems
- Researched novel solutions for interventional navigation to reduce positional uncertainty and tissue damage through probabilistic sensor fusion, state estimation and computer vision

MSR - NORTHWESTERN UNIVERSITY | Graduate Student
September 2014 – December 2015 | Evanston, IL

- Undertook a variety of projects, working on different platforms primarly using ROS, PCL and Gazebo
- Platforms: KUKA youBot, Rethink Robotics - Baxter, Oculus Rift
- Practical experience in various meta-packages in ROS (perception, navigation, MoveIt! etc.) and in other open source frameworks like OpenCV, PCL, Gazebo etc

UAV DEVELOPMENT CENTRE - VIT | Founder & Research Associate
January 2014 – May 2014 | Vellore, India

- Spearheaded the robotics research laboratory at VIT University
- Initiated and completed several projects, leading multidisciplinary teams successfully
- Assisted the PI in drafting research grant proposals from various institutions

SCIENTIFIC AND INDUSTRIAL RESEARCH CENTRE - GVP | Project Intern
October 2013 – January 2014 | Visakhapatnam, India

- Awarded fellowship for research at this institution
- Worked on a Defence R&D project aiming to replace conventional air data systems on 4th generation fighter aircraft

SELECT AWARDS & ACHIEVEMENTS

2015	Best Design	Techcup - Northwestern University
2014	Special Achiever	Exemplary performance in int'l events and academics
2014	Outstanding Project	School-wide award for the best final project
2013	Research Fellowship	GVP Fellowship for outstanding research 2013-14
2013	Finalist	EADS/Airbus Group: Join the spirit contest