KEVIN PAULOSE

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Summary

High-achieving final year undergraduate at the Indian Institute of Technology, Bhubaneswar, with an aptitude in mechanical engineering, mechanics, control systems, and robotics, with an ability to write robust code and develop cutting-edge solutions. Extra-curricular skills as a professional swimmer, black belt in karate, avid reader and professional pianist.

Excited to pursue a master's degree to enhance my academic subjects with a specialisation in dynamics control systems and robotics. My dream career is to be a mechanical engineer in the robotics and aerospace industries.

Skills & Interests

Programming languages	Python, C/C++, MATLAB, JavaScript
Platforms	Linux, Windows, Arduino, GCP, AWS
Softwares	AutoCAD, Solidworks, ANSYS, Arduino, ROS, COMSOL Multiphysics, Gazebo, Simulink, PX4, TensorFlow, LaTEX
Interests	Systems and control, Robotics, Astronautics, Automobile engineering, CAD/CAM/CAE

Education

Indian Institute of Technology, Bhubaneswar 2019 to 2023
BTech Mechanical Engineering
CGPA: 8.37 (out of 10)

Allen Swami Vivekanand Jr. College of Science, Mumbai 2016 to 2018
Intermediate/ +2 Science
Percentage: 82.92 %

Atomic Energy Central School- 4, Mumbai 2016
Matriculation
Percentage: 95%

Work Experience

MITACS Globalink Research Internship Quebec, Canada
Research intern at Universit´e du Qu´ebec en Outaouais May 2022 to Aug. 2022
Research guide: Dr. Soulaimane Berkane
- Developed and tested novel sensor-based obstacle avoidance algorithms for an autonomous 6- DOF quadcopter drone in an unknown environment.
- Lab worked at: LaRSA (Laboratoire de Robotique et Syst'emes Autonomes)

Bhabha Atomic Research Centre BARC/ Remote
Research Intern May 2021 to July 2021
Research guides: Dr. R. Balasubramaniam, Dr. Prabhat Ranjan
Department: Design and Manufacturing Section, Control Systems Development Division
1. Design, analysis and topology optimization for additive manufacturing
2. Extra-terrestrial manufacturing

Crio.Do Remote
Software Engineer Intern (Content) Nov. 2020 to Jan. 2021
Team - Product Development
- Built the flagship product, Crio Projects Hub Primary key tasks were maintaining and reviewing the projects to maintain relevance and quality.
- Co-authored and published 24 projects out of the total 50 available on the platform.

Key Projects

ADAPTIVE CONTROL AND GUIDANCE OF UAVS AND HIGH PERFORMANCE AIRCRAFTS Sept. 2022 to Current
- BTech thesis project under Dr. Satyanarayan Panigrahi
- Develop control schemes using L1 adaptive control to project obstacle avoidance and guidance of drones to actual (fixed-wing) UAVs. Further, develop a robust adaptive control system for the autonomous landing of quadrotors.

OBSTACLE AVOIDANCE ALGORITHMS FOR UNMANNED AERIAL VEHICLES May 2022 to Aug. 2022
- Obstacle avoidance: Developed effective obstacle avoidances algorithm for an autonomous 6 - DOF quadcopter drone in an unknown environment using the concept of Nagumo's invariance theorem, viz., using safety velocity cones (Bouligand tangent cones)
- Tested the newly developed deadlocks - free hybrid approaches on a fully customized small (2 - 25kg weight) drone model- Holybro X500 V2

UNMANNED ARMED ROVER Sept. 2021 to Current
- Design and development of an unmanned armed ground vehicle with an automatic and a manual mode to provide shield and cover to troops. The AI will assist its movement to rectify errors even at night with night vision capability and remotely operated off terrain.
- The vehicle is designed with a robotic arm to perform delicate work and carry arms, ammunition, medical kit, and other heavy equipment.

STEERING MECHANISM OF SAE BAJA VEHICLE Jan. 2021 to Mar. 2021
- Developed a working model of the steering mechanism used in SAE BAJA's buggy per given dimensional regulations using SolidWorks. This model was crucial in determining the material needed and for further CAE analysis in Ansys.
- Further models of roll cages were developed by adding members and trusses in Solidworks, and maximum stress and deformation of different models' frontal, side, rear, and rollover was analysed.

SLACK-LIKE CHATTING APP (LIVE) 2020 to 2020
- Developed a full-stack chatting application with features similar to the Slack app built using React, Redux, and Firebase. The app features authentication, proper chatting channels, image upload in chat features, emojis, and much more.
- It is a live application hosted using Firebase - https://react-slack-clone-63f76.web.app/

Courses Undertaken

Mechanical
Theory of Machines, Fluid Mechanics, Mechanics of Solids, Thermodynamics, Material Sciences, Heat Transfer, Design of Machine Elements, Casting Welding and Forming, IC engines, Machine Tools and Machining, Power Plant Engineering, Refrigeration and Air-Conditioning, Robotics, CAD/CAM, Operations Management, Acoustics*, Soft Computing and applications*

Mathematics
Linear Algebra, Complex Analysis, Differential Equations, Integral Calculus, Transform Calculus, Partial Differential Equations

Labs
Machines & Mechanisms Lab, Electronics Lab, Fluid Mechanics lab, Workshop processes lab, Digital Logic and Systems Lab, Materials Testing and Manufacturing Lab, Physics Lab, Introduction to Programming and Data Structures Lab, Thermal Fluid Lab, Machine Design Practice lab, Casting Welding Forming lab, Machine tool and machining lab

Electrical
Basic Electrical Technology, Basic Electronics (Semiconductor devices, amplifiers, filters, etc.), Systems and Controls

Computer Science
Digital Logic and Systems, Data Structures and Algorithms, Introduction to Machine Learning for Engineers

Others
Introduction to Economics, Introduction to Bioscience and Technology, Environmental Science, Technology and Management, Chemistry, Physics(Electricity and Magnetism, Quantum Physics), Project seminar, Computer Organization and Architecture, Formal Languages and Automata Theory, Satellite communication engineering, Banking theory and practice, Development Economics*, Emotional Intelligence*

Scholastic Achievements

GRE 2022
Scores: Quant: 166, Verbal: 158, AWA: 5.0

IELTS 2022
Overall score band: 8, Listening: 8.5, Reading: 8, Speaking: 7.5, Writing: 7

JEE ADVANCED EXAMINATION 2019
Secured **All India Rank of 5308** out of 0.32 million students

JEE MAINS EXAMINATION 2019
Secured **All India Rank of 4063** with 99.63% percentile among 1.2 million students

BITSAT 2018
Scored 372 out of 450 marks in BITSAT examination conducted by the BITS, Pilani

ALL INDIA OPEN MATHEMATICS SCHOLARSHIP EXAMINATION 2015
Secured all India rank 23 in order of merit list

HOMI BHABHA BAL VAIDNYANIK SPARDHA(HBBVS) 2013
Won **Silver medal** in Junior category in the Homi Bhabha Bal Vaidnyanik Spardha (HBBVS)

55TH ANNUAL ALL INDIA UN INFORMATION TEST 2013
Passed the Pre-Senior UN information test with merit

Positions of Responsibility

Career Development Cell, IIT Bhubaneswar IIT Bhubaneswar
Student Internship Coordinator June 2021 to June 2022
Onboarded new/existing companies at our campus for placements and the internship hiring process. Onboarding, shortlisting, managing candidates and finalising offers are some of the duties undertaken.

Sports Council, IIT Bhubaneswar IIT Bhubaneswar
Aquatics Secretary and Esports Secretary Apr. 2021 to Apr. 2022
Member of the Institute Sports Council. Single-handedly organised Kho- Kho sport as part of the GC tournament 2022 and assisted in several other sports. Organised three major tournaments with over ten teams (5 players in each team) per tournament for esports games such as Valorant, CSGO, etc.

Neuromancers, Programming society of IIT Bhubaneswar IIT Bhubaneswar
Core member Jan. 2019 to Current
Core member of the coding club of IIT Bhubaneswar Neuromancers. Organized numerous events and workshops for topics like Git and full-stack web development. I am also an active competitive coder.

OSS Maintainer Remote
Crio.Do Oct. 2020 to Apr. 2021
OSS GitHub handle: https://github.com/Crio-Bytes/
- Took the lead in the Pull Request Management team.. Maintained the content of master repositories.
- Came up with specific, scalable workflows for active OSS contributions and aided the community by resolving their issues.
- Automated the workflows by configuring bots and APIs.

Activities

Extra- Curricular
- Passed **Grade 5** in Piano (TCL Graded Examination in Music) from **Trinity College, London**
- Black Belt (Sho Dan) in Karate (Shito - Ryu style) under the guidance of Kokino Shito - Ryu Karate school (Japanese affiliation)
- Professional swimmer with participation in the state-level (under - 16 categories) and have won 4 competitions (under - 16 and under - 18 categories) in the freestyle category.

3D Printing Solutions for Medical Innovation (3DPSMI-2021) 2021 to 2021
Key topic highlights of this conference (hosted by NIT Calicut) were the Role of Standards in Achieving Regulatory Requirements for Additive Manufactured Medical Devices and Design for Additive Manufacturing: Medical Applications.

"Creating Lab-to-Land Ecosystem: Challenges and Opportunities" workshop
Key takeaway was "Business strategies for market-driven products" of the extensive workshop conducted by IIT Indore and RRCAT.

Google 30 Days of Cloud Sept. 2020 to Oct. 2020
Completed cloud track and ML track within; gained a lot of insight and experience on Google Cloud Platform.