

# MANIKANTAN R NAIR

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## EDUCATION

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**M.Tech. in Technology Management, University of Kerala** *September, 2018 - September, 2020*

Overall GPA: 9.14/10 (University First Rank)

**B.Tech. in Mechanical Engineering, University of Kerala**

*July, 2014 - May, 2018*

Overall GPA: 8.17/10

## RESEARCH INTERESTS

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My research interests are materials engineering, sustainability, machine learning models, network analysis.

## RESEARCH EXPERIENCE

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**1. Department of Futures Studies, University of Kerala, India** (March, 2020 - November, 2021)

*Graduate Research Assistant*

Used machine learning to propose new materials that can increase the efficiency of solar panels, used citation network analysis to study the evolution and identify trends in the domain of materials informatics, and built a robotic arm and a 2d plotter which is capable of artistic painting, developed a small scale food printer.

Used machine learning to classify cancer cells and road mapped the technological trends of Industry 4.0 technologies like robotics and automation in manufacturing using data mining, network analysis, natural language processing, patent analytics.

**2. Indian Institute for Information Technology and Management Kerala, India** (December, 2019 - March, 2020)

*Graduate Research Assistant*

Developed methodology to categorize land areas based on nutrient similarity and study cultivation patterns to help farmers with practical farming and government formulate agricultural policies using data analytics and network science.

**3. Kerala State Road Transport Corporation, Thiruvananthapuram, India** (May, 2018 - March, 2019)

*Undergraduate Research Assistant*

Investigated end of life vehicles management in Indian scenario and developed an interpretive structural model to analyze the barriers in implementation of end of life vehicle directives in India. Mathematical modeled and developed a decision support system for end of life vehicles handling in Kerala state public transport undertaking.

**4. ACE College of Engineering, Thiruvananthapuram, India** (September, 2015 - March, 2018)

*Undergraduate Research Assistant*

Design, analysis and prototyped a three-wheeled electric vehicle for handicapped - A sustainable approach (the detailed design of the selected concept was carried out using CREO Parametric 3.0), and found the barriers negatively influencing entry of startup airlines into aviation industry.

Design, analysis and prototyping of solar tree for energy conservation, assessed service quality of e-procurement based on a research survey in Kerala Public Sector Undertakings (the results are analyzed & interpreted using SPSS and WarpPLS), and also prototyped a simple air cooler using triz methodology - A Sustainable Approach.

**5. Kerala Automobiles Limited, Thiruvananthapuram, India** (May, 2015 - July, 2015)  
*Undergraduate Project Assistant*

Analysed eco efficiency barrier in Kerala Automobiles Limited, using partial least square method and ISM methodology to identify opportunities of green initiatives for sustainable development.

**6. Sriram Industries, Thiruvananthapuram, India** (September, 2014 - March, 2015)  
*Undergraduate Project Assistant*

Developed an expert system for predicting variations in manufacturing process using control charts.

## INDUSTRIAL TRAININGS

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- 1. Indian Railway- Southern Coaching Depot, Thiruvananthapuram**  
Intern (6th to 10th February, 2018 )
- 2. Titan Company Limited**  
In-plant Trainee (3rd to 8th April, 2017)
- 3. Kerala State Electricity Board Limited, Thiruvananthapuram, India**  
Student Energy Conservator (August, 2015 February, 2016)

## LEADERSHIP EXPERIENCES

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- 1. Kerala University Youth Festival 2019**  
Volunteered for conducting state level traditional art forms competitions.
- 2. United Youth Circuit Sustainable Development Summit 2018**  
Organised United Youth Circuit Sustainable Development Summit held on the 3rd, 4th and 5th of August 2018 at B-hub, Trivandrum.
- 3. Epoch 2017**  
Coordinated 3 days inter-collegiate festival Epoch17 conducted by ACE College of Engineering, Thiruvananthapuram.
- 4. Career Guidance and Placement Unit**  
Coordinated various placement events conducted as chief coordinator.  
Chosen to represent the mechanical engineering department for the placement activities.
- 5. StartupIndia**  
Chief Coordinator for The Startup League organised by Startup India at ACE College of Engineering during the academic year 2017 to 2018.
- 6. Millionminds, & Quest Global, Thiruvananthapuram**  
Campus Ambassador, (June 2017 March 2018)
- 7. Innovation and Entrepreneurship Development Cell (an initiative of Kerala Start-up Mission)**  
Chief Technical Officer - ACE College of Engineering, Thiruvananthapuram.
- 8. APJ Abdul Kalam Forum for Innovation**  
Founded an innovation forum and organized technical events for promoting innovations in the community, including SPARK16 an inter-school project competition.

9. **ACE Fest 2015**

Coordinated the Technical fest Ace Fest 2015 conducted by ACE college of Engineering, Thiruvananthapuram, Kerala.

10. **National Service Scheme**

Actively volunteered for public community services involving cleaning, awareness campaigns, fund raising.

11. **High School Level**

Secretary, Science club

## AWARDS

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1. Special mention at GECB Model United Nations, Thiruvananthapuram, Kerala, India For good delegation and diplomatic representation of the Peoples Republic of China in the United Nations committee ECOSOC. 2019
2. Offered an Intern Trainee position at Larsen & Toubro Limited, Mysuru, Karnataka Based on an online assessment examination conducted by Kerala Startup Mission & Fourth ambit. 2018
3. CampuStar Award by Startup India & Millionminds For actively promoting startup initiatives in the community. 2018
4. Best Questionnaire Award, by ICT Academy of Kerala For formulating a good question from the plenary speech 2017
5. District Level winner of Federal Bank Speak for India- Kerala Edition 2016
6. Best Debate Team Award 2013
7. Honesty Award - Vigilance Department, State Bank of India 2012
8. First price in social science modeling, Malayalam & English Elocution, Essay writing

## PUBLISHED RESEARCH ARTICLES

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1. Azeem Anzar, Azeem Hafiz P A, Harisankar J S, **Manikantan R Nair**, Naveen Sankar G M. (2018). Design Characterisation of Solar Tree Implementation: An Indian Scenario. International Journal of Emerging Technology and Advanced Engineering - IJETAE, Volume 8, Special Issue 4(2), ISSN 2250-2459, ISO 9001:2008 Certified Journal.
2. **Manikantan R Nair**, Naveen Sankar G M, Abhijith R, Anshadh A, Azeem Hafiz P A. (2018). Adaptive Air Suspension in Automobiles- A Case Study. International Journal of Advance Research and Innovative Ideas in Education - IJARIE, ISSN Online 2395-4396.
3. **Manikantan R Nair**, Anshadh A, Abhishek V Gopal, Kiran Bose. (2016). Implementing the Theory of Problem Solving Methodology in Developing Innovative Products. International Journal of Research in Mechanical Engineering - IASTER, Volume 4, Issue 3, May-June, 2016, pp. 128-134, ISSN Online: 2347-5188, Print: 2347-8772, DOA: 27052016.
4. Azeem Hafiz P A, Mohammed Fahad, Naveen Sankar G M, Nandhu M Soman, **Manikantan R Nair**, (2016). Analysis of Barriers Negatively Influencing Entry of Startup Airlines into Aviation Industry using ISM Methodology. International Journal of Research in Mechanical Engineering - IASTER, Volume 4, Issue 3, May-June, pp. 50-57, ISSN Online: 2347-5188, Print: 2347-8772, DOA: 2705216.
5. Nandhu M Soman, Mohammed Fahad, Naveen Sankar G M, **Manikantan R Nair**, (2016). Ranking of Elements Influencing Aircraft Accidents, Using Interpretive Structural Modelling. International Journal on Engineering Technology and Sciences - IJETS, Volume III, Issue III, March, ISSN Online 2349-3976 2016, ISSN Print 2349-3968.

6. Samuel B.T Raj, Anshadh A, **Manikantan R Nair**, Althaf, (2016). Service Quality Assessment of e-Procurement in Kerala PSUs. International Journal on Engineering Technology and Sciences - IJETS, Volume III, Issue III, March, ISSN Online 2349-3976, ISSN Print 2349-3968.
7. Naveen Sankar G M, **Manikantan R Nair**, Anshadh A, Azeem Hafiz P A, (2016). Impact of Barriers on Eco-efficiency in Kerala Automobiles Limited using Partial Least Squares Modelling Technique. International Journal on Engineering Technology and Sciences - IJETS, Volume III, Issue III, March Volume III, Issue III, March, ISSN Online 2349-3976, ISSN Print 2349-3968.
8. Naveen Sankar G M, Anshadh A, Azeem Hafiz P A, **Manikantan R Nair**, (2016). Eco-efficiency Barrier Assessment in Public Sector Automobile Firms in Kerala Using Interpretive Structural Modelling. International Journal of Advanced Research Trends in Engineering and Technology - IJARTET, Vol. 3, Special Issue 5, February, ISSN Online 2394-3785, ISSN Print 2394-3777.

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## RESEARCH PAPERS ACCEPTED FOR PUBLICATION

1. Design, Analysis And Fabrication of Solar Powered Electric Vehicle For Handicapped - A Sustainable Approach (with Springer).
2. Modeling extended producer responsibility: An ELV case study in Saudi Arabia (with International Journal of Social Ecology and Sustainable).

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## RESEARCH PAPERS UNDER REVIEW

1. Blockchain Technology in Smart Manufacturing: The Evolution and Prospects (with Technological Forecasting and Social Change).
2. Network design optimization of ELV recovery network using Genetic algorithm (with Journal of Cleaner Production).
3. Developing a Decision Support System Network Model for Global ELV Management Crisis (with Journal of Cleaner Production).

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## BOOKS PUBLISHING ASSISTANCE

Assisted in writing and compiling the book Design and Engineering (Theory and Practice) as per APJ Abdul Kalam Technological University Syllabus, published by Vector Publications.

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## ORAL PRESENTATIONS (SELECTED)

Presented on the topic Big Data Governance, Intellectual Property Rights, Strategy Management, Innovation Management, Performance Assessment of Concentrated Solar Power Plants Based on Carbon and Hydrogen Fuel Cells, Revival of Rubber Plantations by Introduction of Cottage Tyre Manufacturing Unit, Women in Science, Human Resource Planning, and Gender Equality.

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## INTERNATIONAL/NATIONAL CONFERENCE PRESENTATIONS

1. Tracking the Evolution of Green Chemistry via Citation Network Analysis in the International Conference on Ecological Informatics, 2021.
2. Novel application of the concepts of network science to analyze Geo spatial soil nutrients data in the International Conference on Ecological Informatics, 2021.
3. Economic feasibility analysis for remanufacturing facility upgradation in a public transport corporation in the International Conference on Computing in Mechanical Engineering, 2021.
4. Design of reverse logistic network for automobile recycling: Case study of a transport corporation in south India in the International Conference on Computing in Mechanical Engineering, 2021.

5. Design for Disassembly and Remanufacturing of Automobile Components Using Interpretive Structural Modelling in the International Conference on Computing in Mechanical Engineering, 2021.
6. Impact of Barriers on Eco-efficiency in Kerala Automobiles Limited in the National Conference on Technological Advancements in Engineering, 2017.
7. Solar Trees in the National Conference on Large Scale Multi-disciplinary Systems of National Significance Trends & Challenges, held at Indian Space Research Organization, Sriharikota on 24th and 25th June 2016.
8. Implementing the Theory of Problem Solving Methodology in Developing Innovative Products in the International Conference on Innovative Approaches in Mechanical Engineering and Management Studies, 2016.
9. Revival of Rubber Plantations by Introduction of Cottage Tyre Manufacturing Unit at the National level inter-collegiate fest, 2016.

## **INTERNATIONAL/NATIONAL CONFERENCES ATTENDED**

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ICEI-2021, ICCME-2021, ICAMIE-2020, AMPT-2020, Trivandrum TechCon-2020, Free and open source software professionals meetup-2019, International conference on Technology Innovation in Mechatronics, Energy Management & Intelligent Communication-2018, NaCTAE-2018, NaCTAE-2017, IAMM-2016, NaCTAE-2016, NCEL-2016, KETCON-2016.

## **WORKSHOPS ATTENDED (SELECTED)**

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1. Attended hands on workshops on Humanoid Robotics, 3D Printing Technology, Advances in Data Science, RISC-V, and Web Development.
2. Attended workshop on Android Botix & I Sensorbotz as a part of National Robotics Championship, organized by Indian Institute of Technology Bombay.
3. Attended workshop on Professional and Research Etiquette organized by Office of Undergraduate Research, Louisiana State University, Baton Rouge, Louisiana, USA.
4. Attended workshop on Youth Development Program organized by Toastmasters International.

## **TECHNICAL SESSIONS ATTENDED (SELECTED)**

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Attended technical sessions on Robotics, Robotic Process Automation, Artificial Intelligence, Machine Intelligence, Algorithms and Applications, Computational Nonlinear Dynamics, Philosophy Science and Technology, Fabrication Lab, Nonviolence in Scientific Research, The Future Currency - BitCoins, Evolution of Information Technology, and Blockchain-Technology.

## **EXTRA-CURRICULAR ACTIVITIES**

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1. Delegated in various Model United Nations conferences committees like United Nations Environmental Programme representing the Peoples Republic of China, United Nations General Assembly representing United States of America, United Nations Committee on Peaceful Uses of Outer Space representing Bahrain and United Nations General Assembly representing Greece.
2. Participated in modest number of talk shows and debates.

## **TECHNICAL STRENGTHS**

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<b>Computer Languages</b>	Python, R, Matlab
<b>Design tools</b>	Autocad, Creo for Design Engineers

## ONLINE CERTIFICATION COURSES

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<b>Robotics</b>	University of Pennsylvania
<b>Introduction to Artificial Intelligence</b>	IBM
<b>Machine Learning</b>	University of London
<b>Data Science</b>	Johns Hopkins University
<b>Advanced Manufacturing Process Analysis</b>	University at Buffalo