Dr. Kavita Singh

IT Consultant
(9 years of experience)

+91-9479106584

singh.kavita.mail@gmail.com

H.No.27 ShreeJi Kalpatru Amlihdih Raipur-492006

PROFILE SUMMARY

Experienced IT professional with a **Ph.D. in Computer Science from National Institute of Technology (NIT) Raipur**, specializing in heuristic and metaheuristic techniques for NP-Hard problems. **Skilled in software development, project management, and consultancy.** Adept at developing innovative tech solutions to drive business growth and success.

EDUCATION

Ph.D., National Institute of Technology (NIT), Raipur

M.C.A, Pt. Ravishankar Shukla University, Raipur (Gold Medallist) 82.07%
B.C.A, Veer Bahadur Singh Purvanchal University, Jaunpur (80%)

TECHNICAL SKILLS

- **Web Technologies and Frameworks**: Angular, NodeJS, Express
- **Languages**: JavaScript, C, C++, R ,Python
- **Databases**: MariaDB, PostgreSQL, Oracle10g

AWARDS

- **2019**: **Received Post-Doctoral research fellowship from IFSTTAR Research-Lab Lille France.**
- **2017**: **Junior Research Fellowship** under Department of Science and Technology, SERB
- **Gold Medallist in M.C.A** from Pt. Ravishankar Shukla University, Raipur

PROFESSIONAL EXPERIENCE

I.T Consultant | Ernst & Young, India | 2023 - Present

As an IT Consultant at Ernst & Young, I work closely with clients to implement smart technology solutions that align with their business goals. I am actively involved in developing scalable applications using Angular for front-end development and Node.js with Express for building robust backend services. My responsibilities also include managing server infrastructure, configuring and optimizing NGINX for application deployment, and ensuring overall system reliability and performance. My contributions encompass hands-on development, deployment automation, and supporting the execution of IT strategies that enhance operational efficiency and enable sustainable growth.

Software Developer | Chhattisgarh Infotech Promotion Society (CHiPS) | 2021 - 2023

As a Software Developer at CHiPS, I played a crucial role in designing, developing, testing, and deploying high-quality software solutions.

Project Staff |National Institute of Technology Raipur | 2017 - 2019

As a Project Staff member on the research project "Metaheuristics Techniques for NP-Hard Minimum Spanning Tree Problem," I was actively involved in the execution of the research initiative. My responsibilities included designing, implementing, and refining heuristic algorithms specifically tailored to address the complex requirements of the Minimum Spanning Tree (MST) problem. The development work was carried out using the C programming language within a Linux environment, enabling efficient handling of system-level tasks and performance benchmarking.

Programmer |National Informatics Centre, Raipur | 2012 - 2015

As a Programmer at the National Informatics Centre, I was responsible for developing, enhancing, and maintaining software applications. I worked with the .NET framework to build efficient and scalable solutions. My role also involved integrating and managing Oracle databases, including writing and optimizing SQL queries.

KEY PROJECTS DETAILS

1. Sustainable Development Goals Dashboard: This project aims to develop a valuable tool that can effectively monitor the progress towards achieving the Sustainable Development Goals (SDGs). The dashboard will serve as a platform to track and visualize data related to the SDGs, enabling stakeholders to identify areas that require attention and make informed decisions to drive sustainable development efforts.
- Technology: Angular, Node JS, MariaDB
- Version Control: GIT
- URL: [https://sdgspc.cg.gov.in/]

2. Best Practices Documentation Portal : This portal facilitates the uploading, sharing, and cross-learning of programs, implementation strategies, and best practices adopted by various departments and districts.
- Technology: Angular, Node JS, MariaDB
- Version Control: GIT
- URL: [https://sdgspc.cg.gov.in/bestpractice/#/home]

3. Viksit Chhattisgarh Portal: Using this portal Individuals can propose their ideas for developing Chhattisgarh.
- Technology: Angular, Node JS, MariaDB
- Version Control: GIT
- URL: [https://sdgspc.cg.gov.in/viksitcg/#/home]

4. Right of Way-Chhattisgarh: This project aims to create a straightforward and transparent process for granting permission to licensees to establish telecommunications infrastructure on government, semi-governmental, and privately owned properties in both rural and urban areas, as required.
-Technology: PHP, MySQL
- Version Control: GIT
- URL: https://row.cgstate.gov.in

5. Rajeev Yuva Mitaan Club Scheme, Chhattisgarh
- Technology: ANGULAR 12, NODEJS, EXPRESS, MySql
- Version Control: GIT
- URL: http://rajeevyuvamitaanclub.cgstate.gov.in/#/home

6. CG-STATE - Portal Chhattisgarh
- Technology: ANGULAR 12, NODEJS, EXPRESS, MySql
- Version Control: GIT

7. e-Bill, Billing System for Directorate of Treasury
- Technology: C#, ASP.NET, Java Script, Oracle 10g, Ajax
- URL: http://ekoshonline.cg.nic.in/eBill

8. Web Application for Chhattisgarh State Finance Commission
- Technology: C#, ASP.NET, Java Script, SQL-Server
- URL: http://cg.nic.in/sfc

9. e-Kosh Online
- Technology: C#, ASP.NET, Java Script, Oracle 10g

PH.D. RESEARCH AREA

My research involved exploring and applying heuristic and metaheuristic techniques to solve NP-Hard combinatorial optimization problems. I developed problem-specific genetic and neighborhood operators to improve the performance and effectiveness of these metaheuristic approaches. The implementation of algorithms was carried out using the C programming language in a Linux environment, enabling efficient and scalable computation. Additionally, I conducted comprehensive data analysis using the R programming language to evaluate algorithm performance and interpret experimental results.

Research Project:
- Metaheuristics Techniques for NP-Hard Spanning Tree Problems
Technology: C,UNIX

Publications:

1. Kavita Singh and Shyam Sundar (2018): **Two new heuristics for the dominating tree problem,** Applied Intelligence, Springer-Verlag, Volume-48, Issue 8, pp 2247-2267 [SCI Journal Impact Factor: 2.882] https://doi:10.1007/s10489-017-1075-0.

2. Kavita Singh and Shyam Sundar (2018**): Artificial bee colony algorithm using problem- specific neighborhood strategies for the tree t-spanner problem,** Applied Soft Computing, Elsevier, Volume-62, pp 110-118, [SCI Journal Impact Factor: 4.873] https://doi.org/10.1016/j.asoc.2017.10.022.

3. Kavita Singh and Shyam Sundar (2019): **A new hybrid genetic algorithm for the maximally diverse grouping problem.** International Journal of Machine Learning and Cybernetics, Springer Berlin Heidelberg, pp 1-20 [SCI Journal Impact Factor: 3.844] https://doi.org/10.1007/s13042-018-00914-1.

4. Kavita Singh and Shyam Sundar (2019): **A hybrid steady-state genetic algorithm for the min-degree constrained minimum spanning tree problem,** European Journal of Operational of Operational Research, Elsevier, Volume-276, pp 88-105, [SCI Journal Impact Factor: 3.806] https://doi.org/10.1016/j.ejor.2019.01.002.

5. Kavita Singh and Shyam Sundar (2019): **A hybrid genetic algorithm for the degree- constrained minimum spanning tree problem,** Soft Computing, Springer Berlin Heidelberg, pp 1-18 [SCI Journal Impact Factor: 2.784]) https://doi.org/10.1007/s00500-019-04051-x.

6. Kavita Singh and Shyam Sundar**: Artificial Bee Colony Algorithm using Permutation Encoding for the Bounded Diameter Minimum Spanning Tree Problem** (Published).

Conferences

1. Kavita Singh and Shyam Sundar (2018): **A Heuristic for the Bounded DiameterMinimum Spanning Tree Problem**. 2nd International Conference on Intelligent Systems, Metaheuristics & Swarm Intelligence (ISMSI 2018), March 24-25, 2018, Phuket, Thailand. doi>10.1145/3206185.3206202(Published)

2. Kavita Singh and Shyam Sundar (2017): **A Heuristic for the Degree-Constrained Minimum Spanning Tree Problem**. 2ndInternationalConferenceon Soft Computing: Theories and Applications (SoCTA 2017), Springer,22-24 December 2017, Jhansi- India. https://doi.org/10.1007/978-981-13-0589-4_33. (Published)

3. Kavita Singh andShyam Sundar (2017): **A New Heuristic for Degree-Constrained Minimum Spanning Tree Problem**. International ConferenceonComputational Intelligence: Theories, Applications and Future Directions (ICCI 2017), Springer, 6-8 December 2017, IIT Kanpur-India. https://doi.org/10.1007/978-981-13-1132-1_12. (Published)