Dr. Kavita Singh

IT Consultant
(8 years of experience)

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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

- **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 assist clients with smart tech solutions that align with their business goals.
- I have played a significant role in developing robust IT plans, contributing to the growth and success of clients' IT practices.
- Additionally, I have been instrumental in the development and execution of IT strategies.

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 'Metaheuristics Techniques for NP-Hard Minimum Spanning Tree Problem' project, I played a role in executing the research initiative.
- This involved tasks like crafting, implementing, and refining heuristic algorithms customized for the unique demands of the Minimum Spanning Tree Problem.
- The aim was to ensure optimal efficiency and effectiveness in addressing the research objectives.

Programmer
National Informatics Centre, Raipur | 2012 - 2015

- As a Programmer at the National Informatics Centre, I played a pivotal role in the development, enhancement, and maintenance of software applications.

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. Novenmesh Portal(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 involves exploring and applying heuristic and metaheuristic techniques designed to solve NP-Hard combinatorial optimization problems. Additionally, I am developing problem-specific genetic and neighbourhood operators to enhance the effectiveness of these metaheuristic techniques. Furthermore, my research includes a comprehensive data analysis component, utilizing the R programming language.

Research Project:
- Metaheuristics Techniques for NP-Hard Spanning Tree Problems

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 andShyam Sundar (2018): A Heuristic for theBounded 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 andShyam 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)