

# Kavita Singh

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## PROFILE SUMMARY

Experienced IT professional with 9+ years in software development, IT consulting, and academic research. Adept in full-stack web development, algorithm design, and system architecture. Holds a Ph.D. in Computer Science with specialization in metaheuristic techniques for solving NP-Hard problems. Proven ability to deliver scalable, high-performance solutions for government and enterprise systems, with a strong focus on digital transformation and technical innovation.

## TECHNICAL SKILLS

- Languages: JavaScript, TypeScript, C, PHP, R, SQL
- Frontend: Angular, HTML5, CSS3, Bootstrap
- Backend: Node.js, Express.js, ASP.NET, REST APIs
- Databases: MariaDB, MySQL, Oracle
- Tools: Git, NGINX, Linux, Visual Studio, Postman
- Research & Data Analysis: Metaheuristics, R, Optimization Algorithms, Python

## PROFESSIONAL EXPERIENCE

### IT Consultant, Ernst & Young (EY), India | July 2023 – Present

- Developed the SDG Dashboard using Angular, Node.js, MariaDB, and NGINX for real-time data visualization; designed and optimized the database for efficient analytics.
- Built the Best Practices Portal to showcase best practices in governance using a scalable and modular architecture.
- Created the Viksit Chhattisgarh Portal to improve transparency and citizen engagement through dynamic web content.
- Developed a portal to monitor the progress of government schemes across ministries, with secure access and API integration for real-time data tracking.
- Built the District Acceleration Portal to analyze key development indicators at the district level, with a robust and well-structured database design.
- Implemented CI/CD pipelines and managed source code using Git to streamline development, testing, and deployment.

### Developer, Chhattisgarh Infotech Promotion Society (CHiPS) | 2021 – July 2023

- Delivered web solutions for government initiatives using Angular, Node.js, and MariaDB.
- Led development of the Right of Way (RoW) Portal, supporting the Chhattisgarh state government's RoW policy for telecom infrastructure development; implemented workflow automation and real-time approval tracking.
- Developed the Rajeev Yuva Mitaan Club Scheme Portal to manage youth engagement initiatives, featuring secure user registration, role-based access control, and dynamic content management.
- Directed development of the CG-STATE Portal and managed version control and deployment processes.

### **Project Staff (Research Associate), NIT Raipur | 2017 – 2019**

- Contributed to DST-SERB funded research in metaheuristics for NP-Hard problems.
- Developed heuristic and hybrid optimization algorithms using C and Linux.
- Used R for data analysis and performance evaluation.

### **Programmer, National Informatics Centre (NIC), Govt. of India | 2012 – 2015**

- Built and maintained e-Governance website using ASP.NET and Oracle.
- Key projects: e-Bill System and State Finance Commission Portal.

## **EDUCATION**

- Ph.D. (Computer Science), NIT Raipur | NIT Raipur | NA
- M.C.A., Pt. Ravishankar Shukla University, Raipur | 82.07% (Gold Medallist)
- B.C.A., Veer Bahadur Singh Purvanchal University, Jaunpur| 79.7%

## **RESEARCH & PUBLICATIONS**

Ph.D. Research Focus: Metaheuristic algorithms for NP-Hard combinatorial optimization problems.

### **Key Publications:**

- Two heuristics for the Dominating Tree Problem – Applied Intelligence, Springer.
- Artificial Bee Colony Algorithm with problem-specific strategies – Applied Soft Computing, Elsevier.
- Hybrid Genetic Algorithm for the Maximally Diverse Grouping Problem – IJMLC, Springer.
- Hybrid Genetic Algorithm for Min-Degree Constrained MST – EJOR, Elsevier.
- Genetic Algorithm for Degree-Constrained MST – Soft Computing, Springer.
- ABC Algorithm for Bounded Diameter MST – Soft Computing, Springer.

### **Conferences:**

- ISMSI 2018, Phuket, Thailand
- SoCTA 2017, Jhansi, India
- ICCI 2017, IIT Kanpur, India

## **AWARDS & HONORS**

- Post-Doctoral Fellowship – IFSTTAR Lab, Lille, France (2019)
- Junior Research Fellowship – DST-SERB, Govt. of India (2017)
- Gold Medalist – M.C.A., Pt. Ravishankar Shukla University

## **PERSONAL DETAILS**

- Father's Name: Krishna Kumar Singh
- Gender: Female
- Nationality: Indian
- Address: House No. 27, ShreeJi Kalptaru Colony, Amlihdih, Raipur, Chhattisgarh, India