

Kavita Singh

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PROFILE SUMMARY

Experienced IT professional with over 9 years of expertise in software development, IT consulting, cloud server management, and academic research. Skilled 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 track record in delivering scalable, high-performance government and enterprise solutions, with a focus on digital transformation, data-driven decision systems, and technical innovation. Experienced in preparing SRS and FRS documents for multiple projects and actively involved in the bidding and proposal process.

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 & Platforms:** Git, NGINX, Linux, Visual Studio, Postman
- **Research & Data Analysis:** Metaheuristics, Optimization Algorithms, R, Python
- **Cloud & Server Management:** Hosting configuration, HTTP3 setup, SSL implementation, performance tuning
- **Documentation:** SRS (Software Requirement Specification) and FRS (Functional Requirement Specification) preparation

PROFESSIONAL EXPERIENCE

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

- Developed the SDG Dashboard using the MEAN stack (MariaDB, Express, Angular, Node.js) for real-time data visualization and analytics.
- Migrated legacy systems (Java, PostgreSQL, Apache) to a modern Node.js, Angular, and NGINX-based architecture—improving scalability and performance.
- Led cloud migration from the on-premises Data Centre (Chhattisgarh) to the National Governance Cloud (NGC), enhancing reliability and uptime.
- Configured NGINX for optimized deployment, implemented SSL certificates, and enabled HTTP3 for better communication efficiency.
- Designed and administered MariaDB databases with role-based access, query optimization, and automated backups.

- Prepared detailed SRS and FRS documents for government projects to ensure clarity in requirements and development alignment.
- Actively involved in the project bidding process and technical proposal preparation.
- Resolved vulnerabilities identified in Web Application Penetration Testing (WAPT) reports.
- Developed major platforms: Best Practices Portal, Viksit Chhattisgarh Portal, Scheme Monitoring Portal, and District Acceleration Portal.

Developer | Chhattisgarh Infotech Promotion Society (CHIPS) | 2021 – July 2023

- Delivered MEAN stack web applications for government projects.
- Led development of the Right of Way (RoW) Portal supporting telecom infrastructure development.
- Developed the Yuva Mitaa Club Portal with secure user registration and role-based access control.
- Directed development and deployment of the CG-STATE Portal with version control and CI/CD processes.
- Created SRS and FRS documentation to guide development workflows and ensure stakeholder alignment.

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

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

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

- Developed and maintained e-Governance web applications using ASP.NET and Oracle.
- Key Projects: e-Bill System and State Finance Commission Portal.

EDUCATION

- **Ph.D.** (Computer Science) – NIT Raipur (Specialization: Metaheuristics and Combinatorial Optimization).
- **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

- 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, Amlihdi, Raipur, Chhattisgarh, India.