

KARTHIK SUBRAMANIAN

Principal Software Engineer, Distributed Systems

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01 PROFILE

Principal engineer with 13 years building large-scale payment and data platforms. Designs systems that handle 40,000 transactions a second at 99.99% availability, and leads architecture for a 90-engineer organisation.

02 PROFESSIONAL EXPERIENCE

Principal Software Engineer 2020 – Present
Northwind Payments

- Architected the ledger service processing ₹1.2 lakh crore a year with zero reconciliation breaks in 3 years.
- Cut p99 latency of the authorisation path from 480 ms to 95 ms through caching and async settlement.
- Chair the architecture review board; mentor 6 staff engineers and run the internal systems-design course.

Staff Engineer 2016 – 2020
Tidewater Cloud

- Built a multi-region event-streaming platform used by 140 internal teams (3 billion events a day).
- Led migration of 400 services to containers, saving ₹14 crore a year in infrastructure.

Senior Software Engineer 2013 – 2016
Kestrel Data Labs

- Wrote the query planner for a columnar analytics engine; 6x faster dashboards for 2,000 customers.
- Introduced code review and on-call practices adopted company-wide.

Software Engineer (Intern) 2012
Bluepeak Systems

- Prototyped a log-search tool later shipped to production.

03 SELECTED PROJECTS

Open-source: tidewire 2018 – Present
Maintainer · 4,800 stars

- A lightweight schema-registry client used by 300+ companies; 60 contributors.

Fraud-signal feature store 2022
Northwind Payments

- Real-time features for ML fraud models; false declines down 22%.

04 PATENTS

Subramanian, K., & Rao, S. (2023). Method for idempotent settlement across partitioned ledgers. Indian Patent Application 2023410XXXXX (filed).

Subramanian, K. (2021). System for adaptive rate limiting of payment requests. Indian Patent Application 2021410XXXXX (granted 2024).

05 PUBLICATIONS

- Kim, J., Fischer, A., & **Subramanian, K.** (2026). New approaches to energy-aware model compression. *Journal of Learning Systems*, 42(4), 577–590.
- Mensah, K., Haddad, N., & **Subramanian, K.** (2026). A study of efficient fine-tuning of language models. *Journal of Learning Systems*, 23(8), 77–90.
- Rao, S., **Subramanian, K.**, Okafor, D., & Kim, J. (2026). Towards energy-aware model compression. *Proceedings of the Conference on Scalable Learning*, pp. 235–244.
- Sato, Y., **Subramanian, K.**, Kim, J., & Menon, V. (2025). Understanding energy-aware model compression. *Transactions on Efficient Computing*, 10(2), 810–822.

06 EDUCATION

- M.Tech., Computer Science** 2011 – 2013
Westbridge Institute of Science
 CGPA 9.1 / 10; thesis on consistent hashing for geo-replicated stores
- B.E., Information Technology** 2007 – 2011
Deccan Valley University
 First Class with Distinction, 82.4%

07 CERTIFICATIONS

- Certified Kubernetes Administrator (2021)
- Cloud Solutions Architect – Professional (2020)

08 AWARDS & HONOURS

- Engineering Excellence Award, Northwind Payments (2022, 2024)
- Best Talk, regional distributed-systems meetup (2019)

09 TALKS & PRESENTATIONS

- Keynote: “New approaches to efficient fine-tuning of language models”, Workshop on Trustworthy AI, Chennai, 2026.
- Keynote: “Scaling fairness audits of credit models”, Symposium on Learning Systems, Hyderabad, 2026.
- Contributed talk: “Rethinking efficient fine-tuning of language models”, Transactions on Efficient Computing, Berlin, 2025.
- Seminar: “Evidence on sparse attention for long documents”, Transactions on Efficient Computing, Chennai, 2025.
- Invited talk: “Revisiting calibrated uncertainty in medical imaging”, Asian Conference on Data Mining, London, 2024.
- Poster: “A study of calibrated uncertainty in medical imaging”, Asian Conference on Data Mining, Kyoto, 2024.

10 TEACHING & TRAINING

- Visiting lecturer, Distributed Systems elective, Coromandel Institute of Technology (2023–present)
- Created a 12-week internal course on systems design taken by 350 engineers

11 COMMITTEES & COMMUNITY

- Programme committee, Asian Workshop on Cloud Systems (2023, 2024)
- Mentor, women-in-tech returnship programme (2021–present)

12 SKILLS

Languages: Go, Java, Kotlin, Python, SQL

Systems: Kafka, PostgreSQL, Cassandra, Redis, Kubernetes, Terraform

Practices: System design, SRE, incident command, capacity planning

Languages: English, Tamil (native), Hindi, Kannada

13 REFERENCES

Available on request.