

Krishna Subramanian

Software Engineering Leader

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German Citizen

Summary

Engineering leader with 10+ years of experience building software and leading technical teams, specializing in user-centric product development and data-driven engineering practices. Leadership philosophy centers on empowering teams through clear responsibilities, adequate resources, and supportive systems that enable autonomy and success. PhD in HCI from RWTH Aachen University with research recognized by Best Paper (Honorable Mention) award at CHI 2021.

Professional Experience

devolo solutions GmbH

Head of Software Engineering

Aachen, Germany

May 2021–Present

- Lead multiple cross-functional engineering teams building software for millions of connected devices and network management solutions
- Architect and oversee development of flagship applications serving 50K+ active users monthly
- Built and maintain hawkBit backend framework managing over 4 million IoT products in production
- Rebuilt testing and quality infrastructure after organizational changes, defining test strategies, establishing ownership, and implementing automated release pipelines
- Established data-driven engineering culture with analytics dashboards, Jupyter tooling, and internal tools (firmware monitoring, review automation, CI/CD)
- Mentor engineers and supervise Bachelor's, Master's, and MATSE students on technical projects and research theses

Media Computing Group, RWTH Aachen University

Research Assistant

Aachen, Germany

Aug 2014–Sep 2020

- Published 6 peer-reviewed papers (113 citations) at intersection of data science and HCI, pioneering qualitative research methods at the lab
- Designed and built multiple research software systems including ARPen (iOS 3D modeling in AR), TRACTUS (RStudio addon for hypothesis tracking), StatWire (visual IDE for R), and Statsplorer (statistical analysis tool)
- Supervised 20 students (9 Bachelor's, 11 Master's theses) on topics spanning statistical tools, UI design, and interaction techniques
- Instructed 'Designing Interactive Systems' course (150+ attendees annually) for six years, pioneering shift to flipped classroom model during Covid for hands-on learning

Education

RWTH Aachen University

Doctor of Philosophy in Computer Science

Honors: Best Paper (Honorable Mention) at CHI 2021

Aachen, Germany

Sep 2020

RWTH Aachen University

Master of Science in Media Informatics

Aachen, Germany

Feb 2014

Amrita University

Bachelor of Technology in Computer Science

Coimbatore, India

May 2011

Skills & Expertise

Leadership: Coaching & mentoring, Performance management, Stakeholder communication, Budget management

Technical Strategy: System design, Distributed systems, APIs & integrations, Event-driven architectures

Delivery and Product: Agile/Scrum & Kanban, Roadmapping & prioritization, CI/CD, MVPs, Test automation, Release management

Security and Compliance: Cybersecurity standards (EN 18031-1), GDPR compliance, Accessibility standards

UX and Design: User research, Prototyping, Usability testing, Design systems, Figma

Engineering and Platforms: AWS, Docker, Grafana, Jenkins, GitHub Copilot, Svelte/SvelteKit, Angular, TypeScript, Flutter, iOS

Data and Analytics: Python/Pandas, R, MySQL, Bloomreach, Firebase, A/B testing, LLM integration, RAG

Languages: English (Native), German (Professional)

Projects

Home Network app — ratings 3.5 → 4.2: Proposed and implemented contextual in-app rating prompts at high-satisfaction moments (installation complete, dashboard, speed test). Combined with UI widget contributions, raised app store ratings from ~3.5 to 4.2 across 50,000 active users over six months.

Technologies: Flutter, Firebase, A/B testing

No-hallucination support chatbot (in testing): Building a replacement for an underperforming support chatbot that prioritises accurate "I don't know" responses over confident wrong answers. Baseline accuracy benchmarks will be captured before deployment.

Technologies: Python, LLM integration, RAG

Cybersecurity compliance tool: Designed and built a cross-platform replacement for a Windows-only Access-database compliance process with no concurrent editing. Covers the full current product family and serves as the foundation for all future product lines.

Technologies: SvelteKit, TypeScript, SQLite

Documentation pipeline — months to days: Built a MkDocs + EuroPDF pipeline replacing a single-author Adobe workflow. Turnaround went from months to days; developers now contribute directly; PDF/UA-1 accessibility compliance is automated; three products shipped so far.

Technologies: MkDocs, Python, CI/CD, EuroPDF

AI coding sessions: Led devolo's first internal AI coding assistant session (March 2026), attended by 5 people outside engineering. Direct outcome: 12 GitHub Copilot seats with raised spending limits. Running sessions on a two-month cadence.

Technologies: GitHub Copilot

hawkBit — OTA firmware delivery for 4M devices: Sole developer and maintainer of devolo's fork of Eclipse hawkBit, managing OTA firmware rollouts across 4 million connected networking devices. Diagnosed a recurring database bottleneck — a monitoring service running full-table SQL scans every 30 minutes was holding DB CPU in the high 90s and causing UI freezes. After the fix, CPU settled around 60% and freezes stopped. Built automated cleanup schedulers for rollout records and action status data, delivering a sustained ~7% performance improvement. Also contributed fleet observability via a custom telemetry endpoint, dynamic poll-interval overrides, and managed three upstream version migrations.

Technologies: Java, Spring Boot, Micrometer, IoT, OTA

Research tools for data scientists: Two peer-reviewed, open-source tools built during PhD research at RWTH Aachen University. TRACTUS (CHI 2020 full paper) is an RStudio extension that detects and tracks code experiments in hypothesis-driven data science — helping researchers retrace analytical decisions and avoid redundant work. StatWire (CHI 2018) is a hybrid IDE for R that adds visual data-flow editing alongside text, making statistical pipelines easier to understand and replicate. Both tools have been cited and adopted by researchers outside the lab.

Technologies: R, RStudio, HCI, open source

URL: <https://github.com/i10/tractus>