

# Samit Basu, PhD

---

Inspire and Lead Multidisciplinary Engineering Teams  
to Innovate, Deliver, and Demystify Technology

---

## Experience

Founder and first employee of the Smiths Digital Forge in Silicon Valley, a software/digital innovation center created to serve the digital transformation needs of Smiths Group, a diversified FTSE 100 company. I covered many roles with a single title. The primary three roles were:

### **CEO of the Smiths Digital Forge**

Created the design (physical and organizational) for the Smiths Digital Forge as a 10K square foot R&D facility in Fremont, California. Secured funding (~\$4MM) for the facility, designed the internal MakerSpace (light hardware prototyping lab), the IT infrastructure, etc. Ran the operations of the Forge which grew from 5 to ~30 FTE - mostly engineers and scientists, with program management and software operations. Managed the budget (~\$10MM/yr), overall project schedule, talent profile and headcount allocation. Communicated with the Smiths ExCo and BoD, established a strategy for product digitization with the Smiths divisions, and accelerated the John Crane Sense digital product portfolio, bringing them to market in 2 years. Secured funding for long term cross-division technology developments (such as a hardened industrial gateway). The Forge had the highest employee engagement and satisfaction scores across all of the enterprise, and a culture of innovation and collaboration.

### **CTO of the Smiths Digital Forge/CDO for Smiths Group**

Built the architecture roadmap for connected IIOT solutions for Smiths divisions. Selected technologies, platforms, and processes to promote agile development of new technologies and fast time to market. Developed strategies for where data should be stored based on customer sensitivities, cost and regulatory requirements. Hired, trained and managed a group of ~30 FTEs including software, hardware, test and algorithm engineers and scientists. Mentored engineers in electrical, and software technologies. Communicated with the CTOs of the Smiths divisions to ensure alignment of work with the vision of the divisions. Developed the process for tracking and reporting on innovation projects (~40 at a time) through the TRL 4-9 range.

### **Technical Lead**

Designed the electronics (schematic, PCBA, etc) for high speed cloud-connected data acquisition systems. Selected components for industrial temperature-critical systems, including critical ADCs for sensor types with various precision and speed requirements. Wrote the FPGA gateway to manage 56 separate data acquisition channels fed into an embedded imx7 (Freescale) processor for analysis and transport to the cloud. Designed and implemented a soft real time analysis pipeline in Rust for on-edge analytics. Developed a cloud infrastructure based on SAAS and later PAAS components (initially in Azure, and then later cloud-agnostic) for hosting rich telemetry data, and running analytics, etc. Selected and prototyped the observability stack. Invented, prototyped and productized a high performance, low cost time series database for rich telemetry written in Asynchronous Rust. Developed a mechatronics infrastructure and UI system for a medical infusion pump.

---

## History

- 2017-2023** Chief Digital Officer, Smiths Group
- 2014-2017** Chief Technology Officer, Morpho Detection
- 2007-2014** Chief Engineer, GE Homeland Protection & Morpho Detection
- 2000-2007** Electrical Engineer, GE Global Research Center

---

## Education

- 1998-2000** PhD, Electrical Engineering; University Of Illinois at Urbana-Champaign

---

## Skills

- Leadership of multidisciplinary technical teams
- Invention and creative problem solving
- System analysis and design
- Software and system architecture
- Machine learning algorithm development (Image and volume analysis)
- Cloud architecture, IoT, server-less functions (Azure/AZFO/SAAS/PAAS)
- Signal processing algorithm development (Matlab/Octave/Python)
- PCB design
- Software/firmware technology development (Rust/C++/C/Python/Verilog/Linux/Bare metal)
- Inverse problems
- Application specific data compression

---

## Certifications

- Advanced PCB Layout, Fedevel Academy
- Power supply design and Layout, Fedevel Academy
- Six Sigma Green Belt, GE

---

## Hobbies

- Lead Singer (Rock/Pop cover bands)
  - Mark's Marauders
  - Excess Baggage
- Cooking, Hiking, Weight Lifting, Electronics Design, Open-Source Coding, Rust

---

## Patents & Publications

- Over 80 U.S. patents covering topics such as Computed Tomography algorithm, system design, image analysis, and telemetry storage.
- Over 10 publications in high-impact journals covering Computed Tomography algorithms.