Sarthak Pati

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SUMMARY

Experienced researcher & software architect with **11+ years** experience designing cross-platform applications, leading complex system integrations, and driving R&D from concept to prototype. Expert in AI/ML product development with a focus on robust, scalable, and performant solutions.

TECHNICAL SKILLS

Programming	Python, C++, MATLAB	**Libraries**	PyTorch, TensorFlow, ITK, VTK, OpenCV
CI/CD	GitHub Actions, Travis	**Cross-platform**	Docker, Singularity, Conda, Pip, CMake

LATEST WORK EXPERIENCE

Software Architect **Indiana University** *September 2023 – present*

- Led the design and development of **8+** projects across inter-disciplinary domains such as healthcare AI, privacy, security, federated learning, optimization, and benchmarking.
- Accelerated R&D by designing a robust workflow-based solution to reduce AI prototyping time **by 30%** and thus enable model deployment cycles targeting multi-modal healthcare data.
- Integrated optimization routines for model inference which reduced resource requirements between **10-50%** and reduced overall inference latency between **10-70%**.
- Created and pushed an organization-level strategy to adopt latest research faster by including native support of latest open-source libraries (such as transformers, LLMs, so on) in HPC compute stack, reducing the amount of custom research environments and containers needed by **20%**.
- Led the creation of "*data as IP*" and "*model as IP*" strategies to push R&D efforts into privacy and security applications, culminating in a **USD 3.5 million** grant from NIH for its research.
- Authored **20+** internal and external tutorials, seminars and talks for knowledge dissemination.
- Authored **10+** peer-reviewed publications in high impact journals showcasing cutting-edge research being done by the team.

Application Architect **University of Pennsylvania** *February 2023 – August 2023*

- Established best practices (including DevOps & MLOps) across **6+** projects.
- Contributed to the design and development of OpenFL and MedPerf towards federated learning in research and commercial applications.
- Reduced time-to-market for new features by effectively utilizing DevOps & MLOps practices in the software development lifecycle for AI model development.
- Spearheaded evaluation of cutting-edge technologies and research breakthroughs to drive innovation pipelines, ensuring strategic foresight and technical leadership across high-impact development initiatives.
- Streamlined **10+** legacy projects through refactoring efforts, improving maintainability and reducing the technical debt over time.

Sr. Application Developer **University of Pennsylvania** *December 2014 – February 2023*

- Led the software development efforts for a team of **5** developers and **25** researchers.
- Spearheaded the development in the Federated Tumor Segmentation (FeTS) initiative, an NIH-funded grant, which applies federated learning to real-world applications.
- Acted as one of the lead developers of the Cancer Imaging Phenomics Toolkit (CaPTk) to develop a comprehensive analytics suite aiming to derive extensive panels of quantitative imaging features and integrate them into diagnostic and predictive models.
- Published regular seminars of novel libraries and software packaging techniques to lab members.

EDUCATION

Technical University of Munich
Munich, Germany
Ph.D., Computer Science
2025 | Summa cum Laude

Technical University of Munich
Munich, Germany
M.S., Biomedical Computing

Manipal Academy of Higher Education
Manipal, India
B.E., Biomedical Engineering

HONORS and AWARDS

- Dean's List (*top 10%*) for Doctorate Studies.
- Plenary presentation (*top 8* of all submitted abstracts) at internal symposium in 2023.
- Best poster award (*top 5%*) at NIH Annual Scientific Meeting of the NCI in 2020 and 2022.
- Oral Presentation (*top 5%*) at internal symposium in 2021 and 2022.
- Magna cum Laude (*top 10%*) at internal symposium in 2021.

NOTABLE MEDIA MENTION

www.wsj.com/articles/intel-health-institutions-to-use-emerging-ai-technique-to-improve-tumor-detection-11589191200

LIST OF ALL PUBLICATIONS

sarthakpati.github.io/publications

NOTABLE PUBLICATIONS

1. M. Zenk, U. Baid, **S. Pati**, et al.; *Towards fair decentralized benchmarking of healthcare AI algorithms*; Nature Comms (2025).
2. **S. Pati**, et al.; *An Unsupervised Brain Extraction Quality Control Approach for Efficient Neuro-Oncology Studies*; J of Imag Inf in Med (2025).
3. S. Thakur, **S. Pati**, et al.; *Optimization of Deep Learning Models for inference in low resource environments*; Comp in Bio & Med (2025).
4. R. Turrisi, **S. Pati**, et al.; *Adapting to evolving MRI data: A transfer learning approach for Alzheimer's disease prediction*; NeuroImage (2025).
5. **S. Pati**, et al.; *Privacy Preservation for Federated Learning in Healthcare*; Cell Patterns (2024).
6. **S. Pati**, et al.; *Generally Nuanced Deep Learning Framework for Scalable End-to-End Clinical Workflows*; Nature Comms Engg (2023).
7. **S. Pati**, et al.; *Federated Learning Enables Big Data for Rare Cancer Boundary Detection*; Nature Comms (2022).
8. **S. Pati**, et al.; *Reproducibility analysis of multi-institutional paired expert annotations and radiomic features*; Medical Physics (2020).
9. **S. Pati**, et al.; *Glioblastoma Biophysical Growth Estimation Using Deep Learning-Based Regression*; Neuro-Oncology (2020).