Sarthak Pati

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SUMMARY

Experienced researcher with strong understanding of data analysis, AI development, security, and software design. Utilizes innovative approaches to develop, optimize, and operationalize experimental AI methods in privacy-sensitive sectors such as healthcare.

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

Founder & CEO **Vaiyu Solutions** *October 2023 – present*

- Delivering strategic consulting in AI operationalization and data monetization, empowering clients to extract tangible value from their digital assets.
- Leading a multidisciplinary team to design and implement end-to-end solutions across pharma, healthcare, finance, automotive, and energy domains which are tailored to the scale and complexity of each engagement..

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

- Led the design and development of multiple open-source projects focusing on healthcare AI, privacy, and federated learning.
- Accelerate research and operationalize AI by deploying end-to-end solutions to various entities.
- Researched the integration of diverse data streams for cutting-edge healthcare AI applications, leveraging large language models and advanced transformer architectures.
- Managed collaborations across various stakeholders in academia, industry and non-profit.
- Mentored junior researchers and engineers to foster best practices in AI development and software architecture in daily practice.
- Optimized performance by identifying system inefficiencies and implementing enhancements.
- Communicated technical strategies to senior leadership and external stakeholders.
- Authored comprehensive documentation and research papers on cutting-edge AI research methodologies to facilitate knowledge sharing.

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

- Established application best practices (including DevOps & MLOps).
- Maintained active contributions to the design and development of OpenFL and MedPerf to actively push the boundaries of federated learning forward in terms of research applications.
- Reduced time-to-market for new features by effectively utilizing DevOps and MLOps practices in the software development lifecycle.
- Evaluated emerging technologies for potential adoption in future projects while staying ahead of academic and industrial research trends to maintain competitive and strategic advantage.
- Streamlined multiple codebases through regular 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 multiple developers and 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. **S. Pati**, et al.; *An Unsupervised Brain Extraction Quality Control Approach for Efficient Neuro-Oncology Studies*; J of Imag Inf in Med (2025).
2. **S. Pati**, et al.; *Privacy Preservation for Federated Learning in Healthcare*; Cell Patterns (2024).
3. **S. Pati**, et al.; *Generally Nuanced Deep Learning Framework for Scalable End-to-End Clinical Workflows*; Nature Comms Engg (2023).
4. **S. Pati**, et al.; *Federated Learning Enables Big Data for Rare Cancer Boundary Detection*; Nature Comms (2022).
5. **S. Pati**, et al.; *Reproducibility analysis of multi-institutional paired expert annotations and radiomic features*; Medical Physics (2020).
6. **S. Pati**, et al.; *Glioblastoma Biophysical Growth Estimation Using Deep Learning-Based Regression*; Neuro-Oncology (2020).