

Pramil Paudel

Research Engineer · PhD Candidate

Lawrence, KS | pramil.paudel@ku.edu | Portfolio | LinkedIn | GitHub | Google Scholar

SUMMARY

PhD researcher and production engineer specializing in privacy-preserving computer vision and lensless imaging. Builds end-to-end machine learning systems, from sensor-domain learning and adversarial robustness to real-time physics-aware data processing at CERN scale. Five-plus years of prior industry experience as a solutions architect and engineering manager across U.S. healthcare, insurance, and real-estate platforms.

SKILLS

ML / AI	PyTorch, TensorFlow, CNNs, GANs, Swin Transformers, Diffusion Models, Adversarial Robustness, Privacy-Preserving ML, Lensless Imaging, Fourier Neural Operators
Engineering	Python, Java, Scala, C/C++, CUDA, Spring Boot, Microservices, Docker, Kubernetes, AWS, Azure, CI/CD, Git
Data Systems	Hadoop, Spark, Elasticsearch, MySQL, ETL, Real-time Pipelines, ROOT/CERN Data Analysis

RESEARCH EXPERIENCE

Graduate Research Assistant & PhD Researcher

University of Kansas · Advisor: Prof. Fengjun Li

Jan 2021 – Present

Lawrence, KS

- **RFLIC – Reconstruction-Free Lensless Image Classification.** Designed a sensor-domain classifier using Block-DCT features that achieves state-of-the-art accuracy without spatial reconstruction; accepted at IEEE ICMLA 2025.
- **DiffHide / LiGANS – Privacy-Preserving Lensless Steganography.** Developed a Swin Transformer pipeline, including HNet, RNet, and GAN-based refinement, that covertly embeds full diffraction representations inside natural RGB containers; under review at ACSAC.
- **PPLiC – Robust Privacy-Preserving Classification.** Designed a lensless classification framework that limits GAN-based reconstruction attacks while preserving semantic utility; published at IEEE MASS 2024.
- **LiRT – Physics-Informed Lensless Diffraction Understanding.** Built Fourier Neural Operator architectures guided by PSF optical forward models for reconstruction-semantic tradeoff analysis; in progress.
- **Polarimeter / HW-RankReduce – Real-Time HEP Data Processing.** Built physics-aware pipelines for CERN-scale detector data, calibrating particle detector energy within seconds of a spill and using event-by-event SVD for anomaly detection.

INDUSTRY EXPERIENCE

Backend Solutions Architect

Renegade Insurance, formerly Covered by Sage

Mar 2019 – Dec 2019

Remote / USA

- Designed the company's first production backend from scratch: a real-time P&C insurance platform serving U.S. agents and carriers.
- Delivered a fully functional platform in under 12 months; architecture remained foundational to the production system.
- Trained and mentored 50+ engineers in microservices, cloud deployment, and Agile workflows, helping build the organization's engineering culture from the ground up.

Engineering Manager

National Incubation & Research Center

Mar 2017 – Dec 2018

Kathmandu, Nepal

- Hired and managed 20–25 engineers, QA specialists, and DevOps engineers; responsible for engineering practices from coding standards to cloud infrastructure.
- Architected AWS-based automation pipelines and Spark distributed processing jobs across multiple product lines.
- Resolved cross-functional technical challenges across development, integration, and deployment as the final technical authority across projects.

Lead Software Engineer

Deerwalk Inc., Cedargate

Dec 2014 – May 2017

Kathmandu, Nepal

- Migrated a legacy MySQL-based data processing engine to Java and Hadoop, cutting end-to-end processing time from 30 days to 8 hours, a 90× improvement.
- Designed Scala/Spark frameworks for large-scale HIPAA-compliant U.S. healthcare claims analytics.
- Promoted to Team Lead within one year; owned the full data ingestion pipeline for Plan Analytics and Care Manager platforms.

Senior Software Engineer, Co-founder

Yotcha Inc.

Jan 2015 – Jan 2016

Singapore / Kathmandu

- Served as one of 4–5 founding engineers building a full-stack real-estate listing platform covering Singapore properties from scratch.
- Worked across backend services, frontend UI, data pipelines, and deployment infrastructure.
- Established development standards, CI/CD workflows, and automated deployment practices from the early engineering stage.

EARLY ENGINEERING & ROBOTICS

Core Member, Robotics and Embedded Systems

Robotics Club, Pashchimanchal Campus

Jan 2011 – Sep 2014

Pokhara, Nepal

- Contributed to concept development, programming, circuit design and assembly, mechanical construction supervision, testing, and debugging for robotics projects.
- Secured First Runner-Up and received the Best Engineering Award at the 6th National Robot Competition, “Robocup Nepal 2069(BS): Clean Bagmati, Green Kathmandu,” organized by Robotics Club Pulchowk Campus on July 3, 2012.
- Built an intelligent surveillance and spy robot system for an undergraduate capstone, integrating biometric database management, face/fingerprint recognition, wireless video transmission, face tracking, RF-based remote control, and Android Bluetooth control.
- Supported technical inaugurations and demonstrations for Pokhara Sub-Metropolitan City Office, Maternity Child Friendship Hospital Pokhara-Komagane, Sahara Academy, and Batulechaur Teej Mela.

PUBLICATIONS

- **P. Paudel**, F. Li. *RFLiC: Reconstruction-Free Lensless Image Classification*. IEEE ICMLA 2025. To appear.
- S. Bhattarai, **P. Paudel**, Z. Li, B. Luo, F. Li. *Robust Privacy-Preserving Classification for Lensless Images*. IEEE MASS 2024. doi:10.1109/MASS62177.2024.00056.
- **P. Paudel**, B. Luo, F. Li. *Privacy-Preserving Image-to-Image Steganography via Lensless Diffraction Hiding*. Under review
- **P. Paudel**, D. Tapia Takaki. *Realtime Anomaly Detection using Event-by-Event SVD*. Preparing.
- B. Adhikari, **P. Paudel**. *Basic Electronics Engineering*. Heritage Publishers, Kathmandu, 2017. ISBN: 978-9937-7031-1-6.

EDUCATION

PhD in Computer Science, in progress

University of Kansas

Jan 2021 – Present

Lawrence, KS

Research focus: privacy-preserving computer vision and lensless imaging.

B.E. in Electronics & Communication Engineering

Tribhuvan University

Dec 2010 – Dec 2014

Nepal

SELECTED PRESENTATIONS

- ICMLA 2025, scheduled – *RFLiC: Reconstruction-Free Lensless Image Classification*
- AI4EIC 2025, scheduled – *AI for the Electron-Ion Collider*
- IEEE CANSec 2024 – *Robust Privacy-Preserving Classification for Lensless Images*
- EICUG / ePIC Collaboration Meeting 2024 – *Electron Compton Polarimetry R&D*
- Bootcamp: Computational Tools for Physics – Version Control, Shell Scripting, and Remote Computing

AWARDS & FELLOWSHIPS

- Graduate Student Travel Fund, University of Kansas, 2025
- CANSec Conference Travel Award, 2022, 2024, 2025
- Lydar Fellowship, University of Kansas, 2020
- Parkins EECS Scholarship, University of Kansas, 2020

TEACHING & SERVICE

- **Teaching Assistant:** Software Engineering II, Capstone, Digital Logic, Analysis of Algorithms, Object-Oriented Programming, Python Programming.
- **Community Service:** Secretary, International Nepali Literature Society, 2024–2026; President, Nepalese Student Association at KU, 2021–2022.