

# Pradeep Senthil

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## EDUCATION

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- **University of Illinois - Urbana Champaign** Aug 2021 - May 2023
  - *Masters of Science - Computer Science*
  - *Advisors: Dr. Matthew C. Caesar, Dr. Ryan N. Dilger*
  - *Courses: Deep Learning for Healthcare, Topics in Software Engineering, Topics in Internet of Things*
- **University of Illinois - Urbana Champaign** Aug 2017 - May 2021
  - *Bachelors of Science - Computer Science*

## EXPERIENCE

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- **Alto Pharmacy**
  - *Founding Machine Learning Engineer* Aug 2024 - Sep 2024
    - **End-to-End Migration of ML Pipelines and CI/CD Tools:** Migrated machine learning pipelines from an in-house solution using legacy Kafka methodologies to modern implementations with updated Python versions and MSK connections. Ensured zero-downtime during the migration, maintaining system stability and reliability. Enhanced operational efficiency, enabling data scientists to transition from Concourse and AWS CodeCommit to GitHub and GitHub Actions.
    - **Data Engineer:** While embedded within the Data Engineering team, maintained production-grade data infrastructure including Airflow orchestration, DBT transformation pipelines, and Snowflake data warehouse, managing infrastructure-as-code deployments via Terraform while diagnosing and remediating critical data flow interruptions during 10+ on-call weeks and implementing monitoring improvements to reduce incident frequency.
    - **Kubeflow Upgrade:** Led ML infrastructure modernization by migrating organization's Kubeflow platform from 1.6 to 1.9, upgrading Python environments (3.9→3.12) and containerized tooling, enabling improved developer productivity.
    - **OCR:** Designed and developed an Optical Character Recognition (OCR) framework to extract data from unstructured prescription intake forms increasing fully automated prescription rate by 2% for all faxed prescription intake forms.
    - **Fostering Engineering Excellence:** Collaborated closely with the CTO, VPs and Directors to foster a culture of engineering excellence across the data and analytics organization. Upskilled data scientists through collaborative learning sessions teaching Kubernetes, Observability (Grafana, Prometheus and Loki), CI/CD and coding best practices.
- **Alto Pharmacy**
  - *Software Engineer - Supply Chain* Jul 2023 - Aug 2024
    - **Out Of Stock Reduction:** Engineered bulk and on-demand ordering systems to decrease Out Of Stock (OOS) rate by 30%, improving inventory turnover and significantly reducing costs.
    - **Prices Query Optimization:** Enhanced query performance of price data through data profiling, cleansing, and schema optimization, resulting in improved system responsiveness.
    - **Internal Operations Tooling:** Built and deployed self-service tools for inventory and pricing bulk actions, removing engineering on-call requests entirely. Collaborated closely with product and operations to ensure tool adoption and rollout.
- **AIFARMS**
  - *Graduate Research Assistant* Sep 2021 - May 2023
    - **Deep Learning Swine Tracking:** Designed and developed a deep learning analysis framework to process over 30 terabytes of swine research video into actionable metrics. Additionally, developed a system for graduate students to access metrics data and perform analysis for research studies.
    - **MRI Mask Segmentation:** Designed Convolutional Neural Network (CNN) algorithm to automatically segment brain gray matter from pig MRI images. Achieving a mean IoU score of 94%. Project was orally presented at the SBR 2022 research conference.
    - **AVAT:** Designed and developed an open-source video annotation tool for behavioral and computer vision applications.
- **Walrus Security**
  - *Software Engineering Intern* Jan 2022 - Aug 2022
    - **Deepfake Dataset:** Developed an automated solution to generate a large synthetic deepfake dataset consisting of over 30,000 deepfake videos for use in internal analysis and training.
    - **Deepfake Detection:** Researched and developed POC deep learning models that achieve a deepfake detection rate of 70% on the Facebook DFDC dataset.
    - **Doublecheck:** Created and modified Django models and management scripts to help gather data and improve the facial recognition system by reducing the false positivity rate over 80%

## PUBLICATIONS

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- **PigBET: A 2.5D deep learning segmentation framework for multimodal and longitudinal domestic pig MRI utilizing ImageNet pre-trained encoders:**
- **Feeding style alters the growth and behavior of artificially-reared pigs:**

## SKILLS SUMMARY

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- **AI and MLOps:** Kafka, PyTorch, Kubernetes, Kubeflow, Fastapi, SLM
- **Languages:** Ruby, Python, JavaScript, Bash
- **Frameworks:** Ruby on Rails, React, Django, Docker, Flask, NodeJs