About Me



NAME

Kewei Sha

TITLE

Associate Professor of Data Science

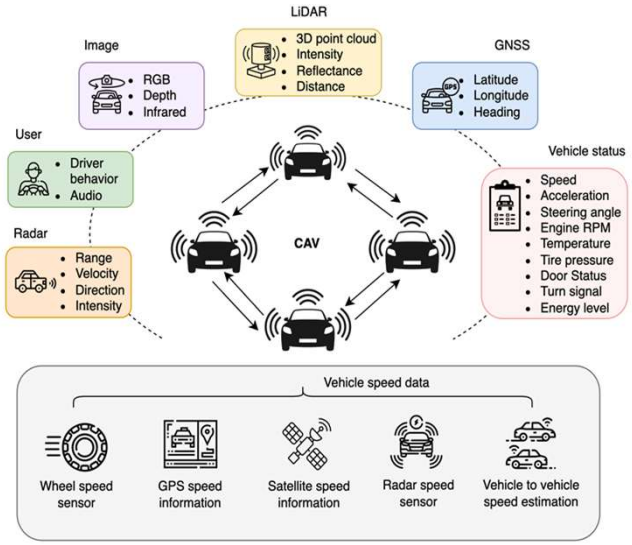
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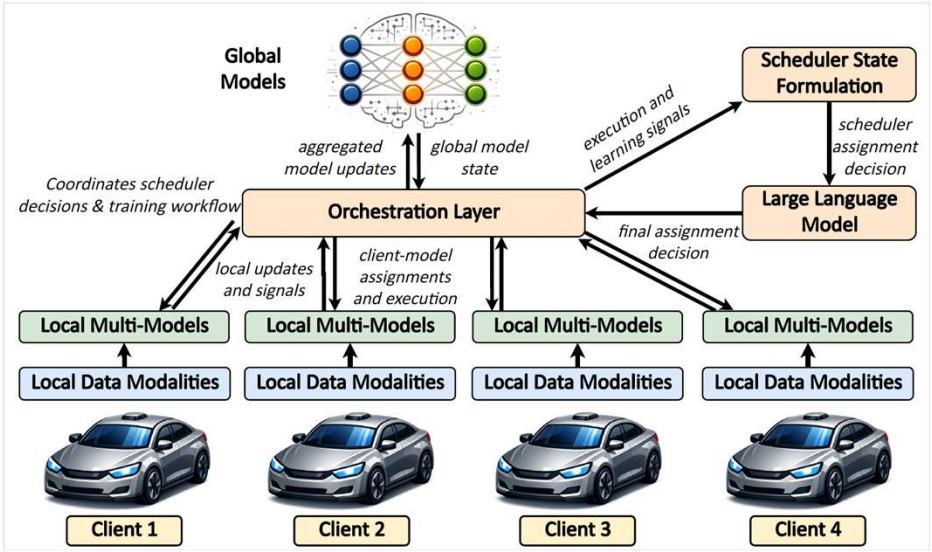
RESEARCH FOCUS AREAS

- Edge Computing
- Physical AI
- Explainable AI
- AI for Healthcare
- Trustworthy AI

Data Quality and Federated Learning for Connected Autonomous Driving (CAV)







Multi-modality Data Quality

- Data quality modeling
- Redundancy management
- Quality-aware data fusion
- Task-centric data quality optimization

Best Paper Award: IEEE MOST 2026

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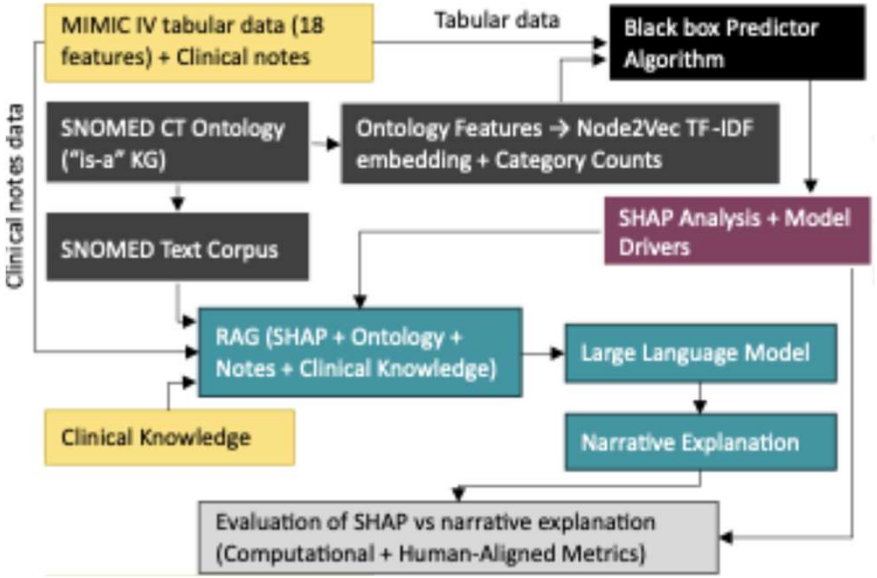
NSF

NVIDIA

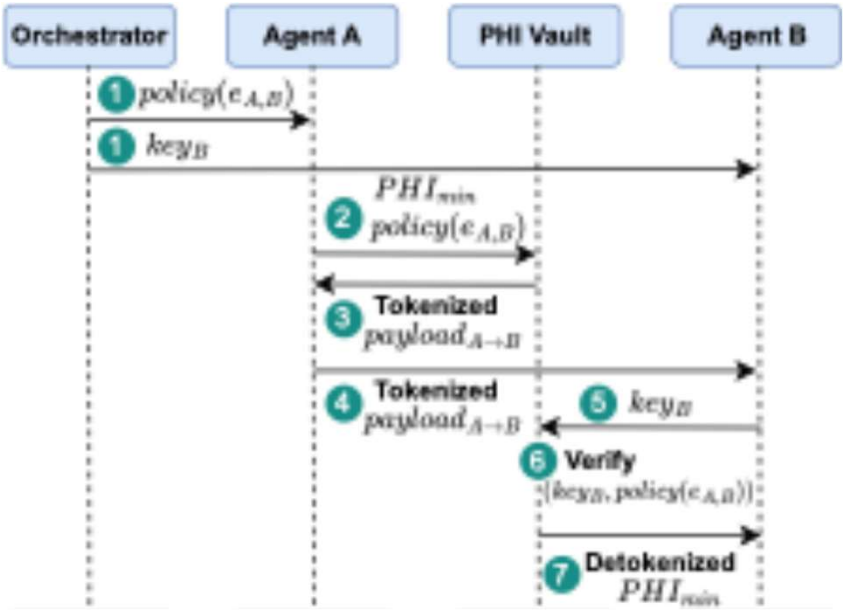
Federated Leaning for CAV

- Privacy-preserving learning
- LLM-base federated learning orchestration
- Resource-aware leaning design
- Efficient AI models for federated learning

Explainable and Trustworthy AI for Healthcare

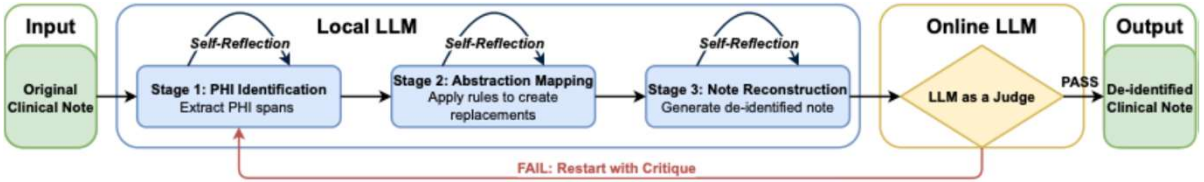


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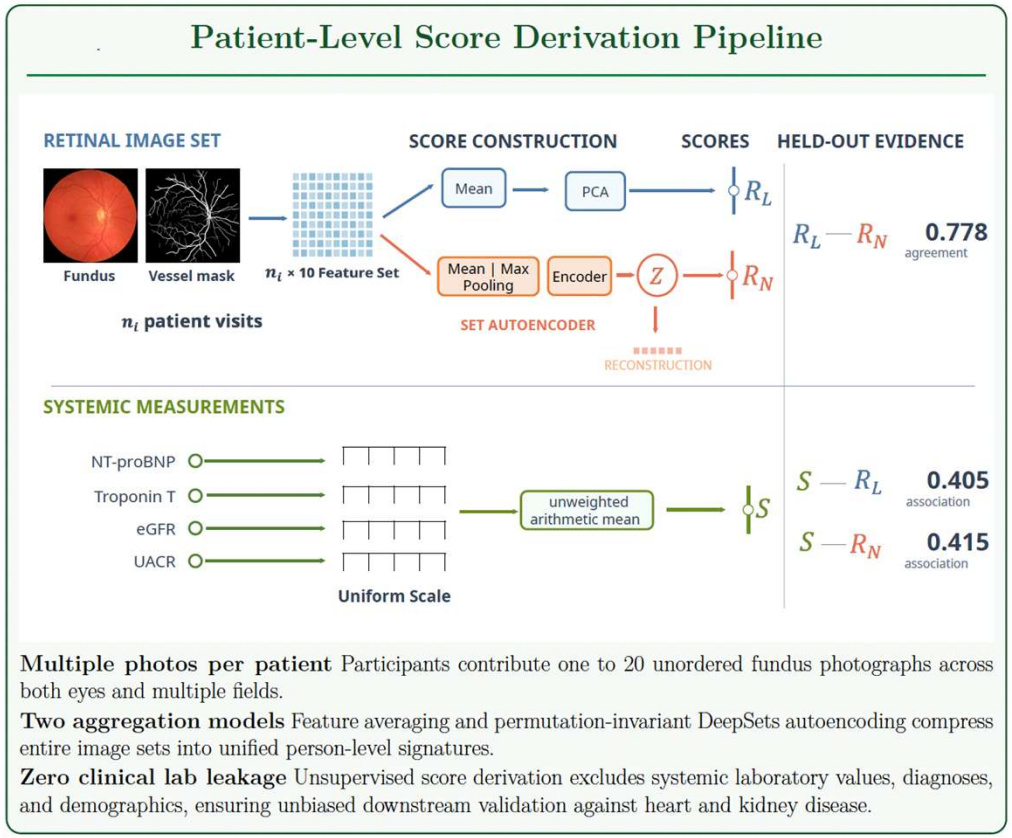
NEURON: a Framework for Clinical Explainability

- An integrated clinical decision-making framework
- Multi-Level explainability across connected decision pipeline
- Component-Level and System-Level Uncertainty Quantification
- Clinical Utility-Oriented Explainability



Best Paper Award: IEEE/ACM CHASE 2026

Through the Eyes: AI-Driven Insights into Human Health

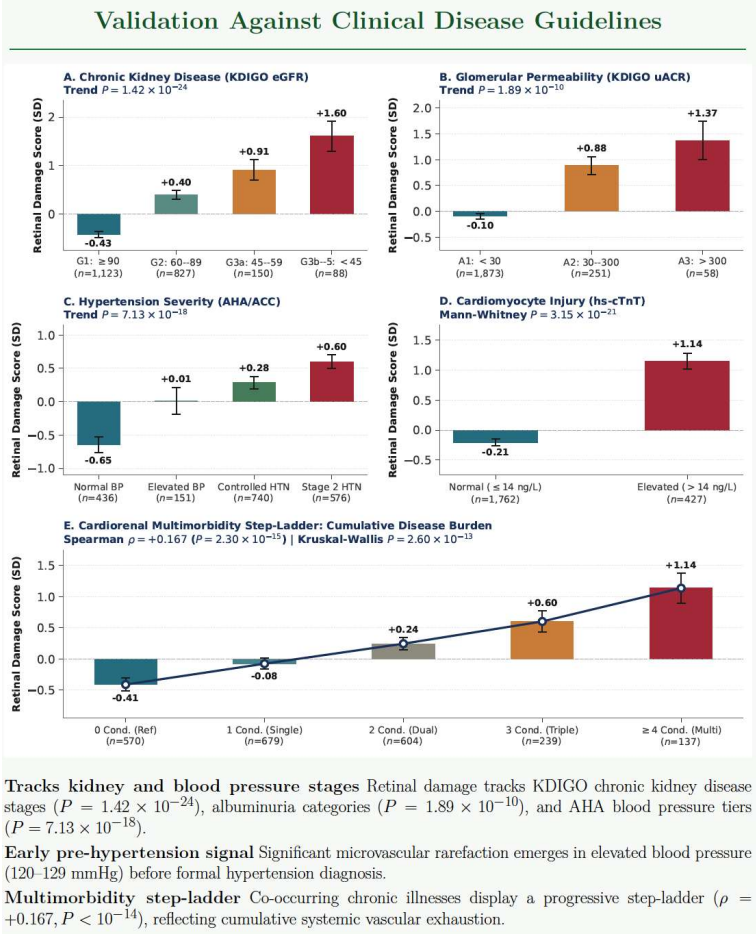


Multiple photos per patient Participants contribute one to 20 unordered fundus photographs across both eyes and multiple fields.

Two aggregation models Feature averaging and permutation-invariant DeepSets autoencoding compress entire image sets into unified person-level signatures.

Zero clinical lab leakage Unsupervised score derivation excludes systemic laboratory values, diagnoses, and demographics, ensuring unbiased downstream validation against heart and kidney disease.

Method to calculate retinal vascular damage score



Tracks kidney and blood pressure stages Retinal damage tracks KDIGO chronic kidney disease stages ($P = 1.42 \times 10^{-24}$), albuminuria categories ($P = 1.89 \times 10^{-10}$), and AHA blood pressure tiers ($P = 7.13 \times 10^{-18}$).

Early pre-hypertension signal Significant microvascular rarefaction emerges in elevated blood pressure (120–129 mmHg) before formal hypertension diagnosis.

Multimorbidity step-ladder Co-occurring chronic illnesses display a progressive step-ladder ($\rho = +0.167$, $P < 10^{-14}$), reflecting cumulative systemic vascular exhaustion.