

Rohan N. Dhamdhare

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TRANSLATIONAL RESEARCH PROFILE

Biomedical engineer focused on **frugal innovation**: developing scalable, AI-driven diagnostic tools built on routine clinical data for resource-limited settings. Demonstrated record of advancing research toward clinical use through **\$50,000 in commercialization funding**, an **intellectual property portfolio** (1 allowed patent, 2 pending), and clinical validation of diagnostic algorithms in cohorts totaling **1,500+ patients** across cardiology, nephrology, and hepatology.

INTELLECTUAL PROPERTY & COMMERCIALIZATION FUNDING

Commercialization Grant

\$50,000 Georgia Research Alliance (GRA) Phase 1 Grant | 2025

- **Project:** ARiSe – *AI-informed Risk Stratification for Systemic Diseases*
- **Role:** Co-Investigator / Key Technical Lead
- **Purpose:** Commercial translation and prototype development of a retinal Systemic diseases (CVD, CKD, Alzheimer's, Diabetes) risk stratification tool for use in non-specialist and resource-limited settings.

Patents & Invention Disclosures

- **Patent Allowed for Issuance – Deep-learning-based hepatic fat assessment** Inventors: Modanwal G, Al-Kindi S, Walker J, **Dhamdhare R**, Rajagopalan S, Madabhushi A. Status: Notice of Allowance (Oct 2025); published as US 20240420320 A1
- **Patent Application – Medical analysis using spatiotemporal analysis and transformer-based models** Inventors: **Dhamdhare R**, Al-Kindi S, Modanwal G, Madabhushi A Status: Pending (US 20250118435 A1); filed Sept 2024
- **Patent Application – Systems for Cardiovascular Risk Assessment Using Vessel Geometry (ARiSe)** Inventors: **Dhamdhare R**, Madabhushi A. Status: Pending; covers core retinal vessel geometry-based risk assessment technology underpinning ARiSe / CARE-CKD.

TRANSLATIONAL RESEARCH & PRODUCT DEVELOPMENT

Georgia Institute of Technology & Emory University – Dept. of Biomedical Engineering

Graduate Researcher | Atlanta, GA | 2022 – Present

Project: ARiSe / CARE-CKD – Retinal AI for Cardiovascular Screening in CKD

- **Problem:** Cardiovascular disease (CVD) screening is often costly and inaccessible in non-specialist and resource-limited settings.
- **Innovation:** Designed a “frugal AI” pipeline (ARiSe) that repurposes routine, low-cost retinal fundus images to predict CVD risk; clinically evaluated in CKD patients as **CARE-CKD**.
- **Clinical & Translational Traction:**
 - Validated on **800 CKD patients**; results published in *Kidney360* (CARE-CKD study) using real-world clinical data.
 - Retinal feature pipeline additionally demonstrated utility for **Alzheimer's disease** detection, highlighting cross-disease applicability.
 - Featured in **Emory Health Digest (Summer 2025)** as a case study in equitable diagnostics.
 - Secured **GRA Phase 1 commercialization funding** to develop a deployable retinal risk assessment prototype for optometry and nephrology clinic workflows.

Project: Non-Invasive Transplant Rejection Monitoring (ECG-based)

- **Problem:** Heart transplant recipients undergo frequent, invasive endomyocardial biopsies to monitor rejection.
- **Innovation:** Developing an AI-based ECG analysis tool to estimate rejection risk non-invasively and **reduce reliance** on biopsies.
- **Clinical Traction:**
 - Preliminary validation accepted for presentation at **ISHLT 2026**.
 - Ongoing work with clinical collaborators to integrate the model into standard post-transplant follow-up workflows.

Center for Computational Imaging and Personalized Diagnostics (CCIPD), Case Western Reserve University
Research Assistant | Cleveland, OH | 2020 – 2022

Project: Opportunistic Liver Screening (DeHFT / LARI)

- **Innovation:** Co-invented a deep learning system to assess hepatic steatosis from **low-dose CT scans** originally acquired for coronary calcium scoring (opportunistic screening).
- **Clinical & Translational Traction:**
 - Validated on **700 patients** with strong correlation to reference standards.
 - Underpins an **allowed US patent** on hepatic fat assessment.
 - Extended in the **LARI** study, published in *Lancet eBioMedicine*, demonstrating opportunistic liver fat quantification at scale and supporting future licensing/translation opportunities.

SELECTED TRANSLATIONAL PUBLICATIONS

- **Dhamdhere R**, et al. “Fundus Photograph–Derived Computational Features Predict Risk of Cardiovascular Events in the Chronic Renal Insufficiency Cohort Clinical Observational Study.” *Kidney360*. 2025.
 - Clinical validation of retinal vessel feature–based CVD risk prediction (CARE-CKD; n≈800).
- Modanwal G, **Dhamdhere R** (technical co-inventor), et al. “Opportunistic hepatic steatosis assessment in low-dose coronary artery calcium CT using liver adipose-radiomic index (LARI).” *Lancet eBioMedicine*. 2025.
 - Validation of patented liver fat assessment tool on ~700 patients using opportunistic CT.
- **Dhamdhere R**, et al. “STAR-Echo: A Novel Biomarker for Prognosis of MACE Using Spatiotemporal Analysis of Echocardiogram Videos in CKD Patients.” *MICCAI*. 2023.
 - Foundation for transformer-based spatiotemporal patent; repurposes routine echo for future CVD risk prediction.
- **Dhamdhere R**, et al. “ECG-based prediction of heart transplant rejection.” Abstract accepted for presentation at **ISHLT 2026**.
 - Early clinical validation of non-invasive rejection risk modeling.

EDUCATION

- ◆ **Georgia Institute of Technology & Emory University** PhD, Biomedical Engineering | Expected 2026
Focus: AI-driven cardiovascular disease risk stratification and translational deployment of medical AI tools.
- ◆ **Rochester Institute of Technology (RIT)** MS, Computer Engineering | 2018
- ◆ **Savitribai Phule Pune University** BE, Electronics & Telecommunication | 2015

LEADERSHIP, TEACHING & MEDIA

- **Co-President**, Graduate Student Advocacy Board (BME, Georgia Tech/Emory) | 2024–Present
 - Organized student–faculty townhalls to address PhD training concerns.
 - Helped restart the **Mock Quals** mentorship program pairing senior and junior PhD students.
 - Provided avenue for discussion of Teaching Assistantship and Health Insurance concerns of students.
- **Teaching & Mentoring**
 - Led sessions for **Bioengineering Statistics**, mentoring junior students on data validation, reproducible analysis, and model interpretation.
- **Featured Innovator**, *Emory Health Digest*, Summer 2025
 - Profiled for work on AI-enabled retinal imaging for cardiovascular risk assessment.