

CITeR

Center for Identification Technology Research

ACCELERATING INNOVATION IN BIOMETRICS & DIGITAL IDENTITY

- **1 million dollar portfolio for $50K membership**
- **Early access to research results, including datasets and code**
- **Leverage research dollars with pooled funding model**
- **Influence over the research agenda**
- **Access to community of experts from academia, industry, government**
- **Networking opportunities held at every research review**
- **Access to student population**

University of North Carolina Charlotte · Michigan State University · University at Buffalo · West Virginia University · Clarkson University · Idiap Research Institute

A NATIONAL SCIENCE FOUNDATION INDUSTRY/UNIVERSITY COOPERATIVE RESEARCH CENTER

With our interdisciplinary group of faculty, researchers and students, CITeR is the only National Science Foundation (NSF) Industry/ University Cooperative Research Center (I/UCRC) focusing on serving its affiliates in the rapidly growing areas of identity and biometrics.

- 20+ Master's and PhD students currently engaged in CITeR research
- 20+ faculty engaged in research and teaching biometrics
- Webinars featuring results from recently completed CITeR projects

CITeR Members

ACV Auctions
Athena Sciences
Aware, Inc
Defense Research and Development Canada (DRDC)
Defense Forensics and Biometrics Agency (DFBA)
DHS Office of Biometric Identity Management (OBIM)
DHS Science & Technology (DHS S&T)
Digital Identity Advancement Foundation (DIAF)
FBI Criminal Justice Information Services (CJIS)
FBI Operational Technology Division (OTD)
HID
Home Team Science and Technology Agency (HTX) – Singapore
IDEMIA
Ingenium Biometrics
Innovatrics
Integrated Biometrics
Israel National Cyber Directorate
National Security Agency (NSA)
Neurotechnology
Oak Ridge National Laboratory
Persona
Private Identity
Public Safety Canada
Qualcomm
Synolo™ Biometrics
Thales
U.S. Army Criminal Investigation Laboratory (USACIL)

Benefits of Membership

- Collaboration with leading universities to solve today's most challenging problems in biometrics, identity, AI, and cyber security.
- New member GATEWAY projects ensures a project of your choice for year 1 membership
- Special projects allow additional projects of a members choice to be carried out for additional funds.
- Members define research priorities and vote on which projects receive funding.
- Maximize Your R&D Investment: Your $50K membership becomes part of a coordinated research portfolio approaching $1 million annually, allowing you to leverage multiple universities and dozens of researchers for a fraction of the cost of sponsoring individual projects

Technology Transition

Research That Moves Beyond the Lab - CITeR research is designed for operational impact.

Recent technology transitions include:

- Face morph datasets delivered - NIST
- Deepfake detection tools - DHS
- Remote identity verification evaluations - GSA
- Child face recognition guidance - DHS
- CITeR Github repository for software, code and datasets:

Scan to Explore the Full Repository
Software, code, datasets, and open-source tools released to the research community
citer-research.github.io/CITeR-Projects-Page

Survey Quotes from Current Industry & Government Members:

Considering all of the networking, R&D, technology transfer, and commercialization benefits your firm may have realized, what benefit(s) have been the most impactful to your organization? How so?

"With on-roll employees mostly oversubscribed, CITeR provides the ability to have relevant research performed in support of our mission. Collaboration with faculty and students. Internships."

"Early access to R&D findings."

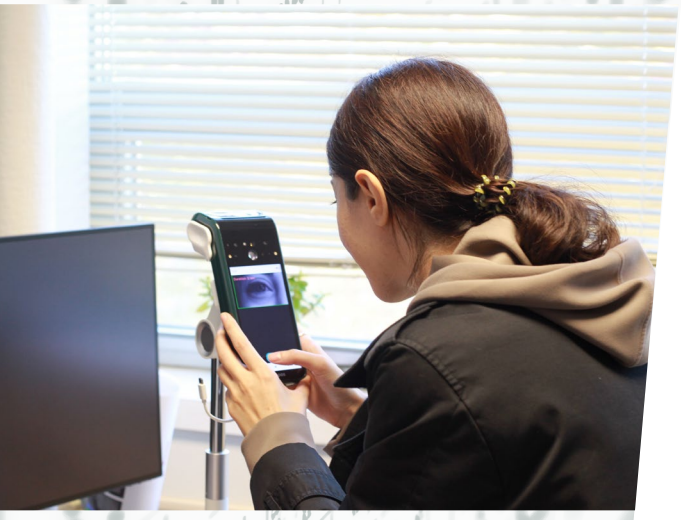
"Networking, as prospective members."

"Sharing of data and research results."

"Providing scientific research that supports or improved operational use of various technologies."

Research Highlights





Noncontact & Behavioral Biometrics – Advancing touchless fingerprint recognition and behavioral biometric technologies for next-generation identity systems.
github.com/CITeR-Research/Dataset-Keystroke-Collection

Face Morphing – Developed world-leading face morph datasets, detection software, along with morph detection and demorphing software used in government benchmarking.
https://github.com/zblasingame/Greedy-DiM

Deepfake Detection - Developed the widely used DeepFake-O-Meter platform for detecting image, video, and voice manipulation.
zinc.cse.buffalo.edu/ubmdfl/deep-o-meter

Presentation Attack Detection – Creator of the internationally recognized LivDet competitions and benchmark datasets used by researchers in more than 40 countries.
livdet.org

Privacy-Preserving Biometrics – Developing secure biometric matching using homomorphic encryption and advanced template protection without exposing biometric data.
github.com/human-analysis/encrypted-biometric-fusion

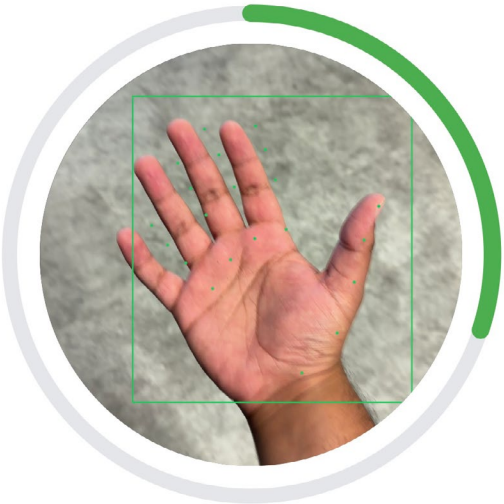
Longitudinal Child Biometrics – Built one of the world's largest long-term biometric datasets of children, supporting advances in pediatric face, fingerprint, and iris recognition.
github.com/CITeR-Research/Dataset-Multi-modal-Longitudinal-Children-Biometric

Synthetic Biometrics – Developing AI-generated biometric datasets that reduce reliance on sensitive real-world data while improving biometric system development and testing.

github.com/syedkonain/Conditional-Synthetic-Live-and-Spoof-Fingerprint-Generation









Awarded Fall 2024

- AI Synthetic Video Detection Using Multi-Model Manipulation
- Automated Detection of Contactless Fingerprint Images in Contact Finger print Databases
- Development of Extended-Length Audio Dataset for Advanced Deepfake Synthesis and Detection
- Fraud Identification Based on Behavioral Characteristics in an Online Marketplace (Developing Scene Text OCR for Vehicle Tire Identification and Analysis to Enhance Automobile Fingerprint)
- Mitigating the Impact of Dilation on Iris Recognition
- Surveying the Landscape of Generative AI and Detection of Deepfakes
- Investigating Private-Information Leakage from Face Templates (Gateway)
- Study of Identity Preservation in Deepfake Face Swapping Tools and 3D Mask Creation
- Vision Language Models for Forensic Biometrics (VLM4FORBIO)

20X

Awarded Spring 2025

- Latent Fingerprint Database with Multiple Substrates and Development Techniques
- Longitudinal Progression of Biometric Recognition in Fingerprint, Face, Iris, and Voice
- Study on the Potential for Fingerprint Modality Using Wide-Area Sensors for Next-Gen Digital Identity Management on Consumer Devices
- FakePincer: A Multi-pronged Defense against Real-Time Deepfakes in Video Conferencing
- LLM-Based Zero-Shot Explainable Face Recognition Through Synthetic Attribute Manipulations
- A Multi-Layered Framework for Robust Deepfake Audio Detection and Tamper Analysis
- Feasibility Analysis on Iris-biometrics Authentication from Selfie Camera, INCD
- A Taxonomy and Benchmark for Selfie Liveness Fraud



Return On Investment



Research Repositories & Resources

A curated preview of code repositories and datasets supporting biometric identification research, evaluation, and accessibility.

20+
CODE REPOSITORIES

30+
DATASET REPOSITORIES

SAMPLE CODE REPOSITORIES INCLUDE:

AI Synthetic Video Detection

Multimodal methods for identifying manipulated video using facial, audio, and temporal cues

Synthetic Contactless Fingerphotos

Deep-learning approaches for generating synthetic fingerphoto data to support evaluation and algorithm development

Facial Image Quality Toolbox

A research toolbox for assessing facial image quality using standardized evaluation criteria

SAMPLE DATASET REPOSITORIES INCLUDE:



LivDet 2024 Face Dataset

A liveness-detection dataset supporting face presentation-attack research and benchmarking

Deepfake Audio Detection Dataset

A dataset created for research on synthetic speech and deepfake audio detection

Synthetic Iris Dataset Collection

Synthetic iris imagery designed to support research, evaluation, and comparative studies

Explore the Full Collection

The complete repository includes additional code, datasets, project leads, and access links across CITeR partner institutions

Scan to Explore the Full Repository

citer-research.github.io/CITeR-Projects-Page

Recent CITeR Graduates

As an NSF Industry-University Cooperative Research Center (IUCRC), CITeR aligns with mission to accelerate the impact of academic research on the marketplace and cultivate a robust, high-tech workforce. Student researchers are central to this collaborative ecosystem. Upon completing their training, our recent graduates successfully transition into high-impact careers across industry, government, and academia–with many joining our member organizations directly. We proudly recognize these individuals as the next generation of leadership driving industrial innovation.

MSU:

Minchul Kim, PhD, 2025, Apple, Senior Machine Learning Engineer

Xiao Guo, PhD, 2025, Amazon, Applied Scientist II

Lan Wang, PhD, 2024, Google, Research Scientist

Wei Ao, PhD, 2026, Amazon, Applied Scientist, Multimodal Personalization

WVU:

Evan Garrett, May 2025, MSEE, Parsons Corp., Software Engineer

Banafsheh Adami, May 2025, MSEE, Doctoral Student at USF

Saeed Ebrahimi, Dec 2025, PhD, Apple, Generative AI Applied Scientist

Amol Joshi, Dec 2025, PhD, Postdoc at Baylor Medical School

Mahedi Hasan, Aug 2026, PhD, Postdoc at Ohio State

Buffalo

Dennis Fedorishin, PhD 2025, ACV Auctions, Senior Machine Learning Research Scientist / Engineer

Bhavin Jawade, PhD, 2024, Netflix, Research Scientist

Dr. Shan Jia, CITeR Post-doc, Google/YouTube, Senior Software Engineer

Dr. Defang Chen, CITeR Post-doc, Berkeley Artificial Intelligence Research (BAIR) Lab

Clarkson

Md Abdul Baset Sarker, PhD, 2025, Research Scientist, Howard University

Naveen Venkataswarmy, PhD, 2025, Securiport, Senior Software Engineer

Surendra Singh, PhD, 2025, HID, Data Scientist

Afzal Hossain, PhD, 2025, Mitek, Machine Learning Engineer

Zander Blasingame, PhD, 2025, Aithyra Research Institute, Postdoc,

Ayeni Kolade, BS, 2026, Microsoft, Software Engineer

Avery Shoemaker, MS, 2025, Ombra, Software Engineer

Message From the Director

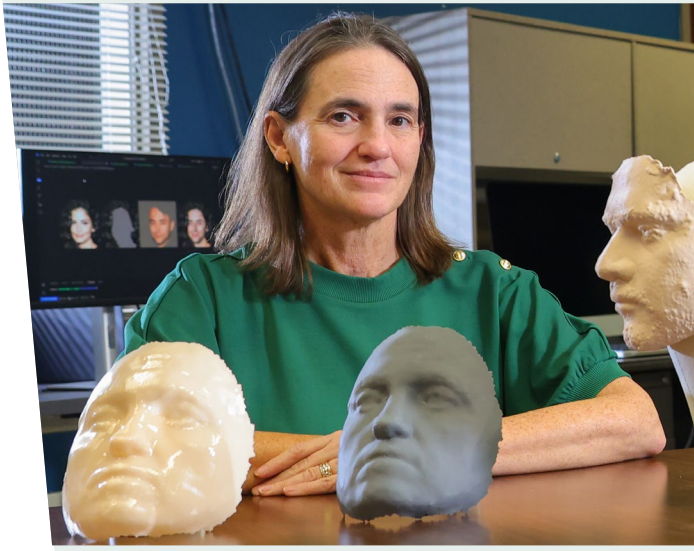
The use of biometric recognition and artificial intelligence (AI) to determine legitimacy of identity for commercial and government systems is ever expanding. The proliferation of PII has brought widespread concerns around bias, surveillance, political persecution, and information exploitation. The Center of Identification Technology Research (CITeR) serves to address the needs of society during rapid technological change while ensuring the guardrails around technology are grounded in an understanding of the science.

As our organization transitions into the third phase of the NSF IUCRC journey, after 20 years in existence, I'm reflecting on the relationships with Industry and Government that fuel CITeR – see the current affiliate list to the left. Membership in CITeR allows organizations to influence and guide the CITeR research portfolio. This cooperative model between members and the University researchers allows for the advancement of the fundamental body of identity research while simultaneously supporting the research platform of our affiliate members.

The CITeR Affiliate community is composed of key technical representatives from the member organizations. Since its establishment, CITeR has been fortunate to have informed, engaged affiliate members. This couldn't be more true today – significant research cycle engagement, hosting CITeR workshops, involvement in CITeR outreach STEM events, and active engagement with CITeR researchers and student populations. This active engagement strengthens the CITeR community and promotes mutually beneficial outcomes for all.

In Phase 3, CITeR will continue efforts to provide value to our current members and look to establish new verticals, including Banking, Healthcare, and Social Good – expanding the research portfolio to benefit all. UN Goals and Presidential orders surrounding the efforts to create electronic identities for all and the recognition that societies must support the safe, secure and fair use of AI through privacy-enhancing technologies support the value of the CITeR research portfolio. We look forward to helping our affiliate community solve their research challenges in their portfolios.





Dr. Stephanie Schuckers
Director of the Center for Identification Technology Research (CITeR)

CITeR

Center for Identification Technology Research

research.charlotte.edu/citer

UNC Charlotte
Dr. Stephanie Schuckers
Director
704-687-5943
sschucke@charlotte.edu

Clarkson University
Laura Holsopple
Managing Director
315-268-2134
lholsopp@clarkson.edu

West Virginia University
Dr. Matthew Valenti
Site Co-Director
304-293-9139
matthew.valenti@mail.wvu.edu

West Virginia University
Jeremy Dawson
Site Director
304-293-4028
jeremy.dawson@mail.wvu.edu

Michigan State University
Dr. Arun Ross
Site Director
517-353-9731
rossarun@cse.msu.edu

University at Buffalo
Dr. Venu Govindaraju
Site Director
716-645-3321
venu@cubs.buffalo.edu

University at Buffalo
Srirangaraj Setlur
Site Co-Director
716-645-1568
setlur@buffalo.edu

Idiap Research Institute
(international site)
Dr. Sébastien Marcel
Site Director
+41 27 721 77 27
marcel@idiap.ch

Industry Advisory Board

Michelle Davis
Biometrics and Forensics RDT&E Analyst
Defense Forensics and Biometrics Agency
Booz Allen Hamilton

CITeR Executive Commitee

David Bolme
Identity Science Lead and Senior Research Staff
Oak Ridge National Laboratory

Jian Wang
Director
Biometrics Research & Technology
Thales

Steve Saggese
CEO & Co-founder
Synolo Biometrics

Brian Green
S&T Program Manager, Border Security and Biometrics
Defence Research and Development Canada
Department of National Defence, Government of Canada

A NATIONAL SCIENCE FOUNDATION INDUSTRY/UNIVERSITY COOPERATIVE RESEARCH CENTER