

Improving Community and Neighborhood Safety Through Open Data Collection

NSF Project ID: 1952029

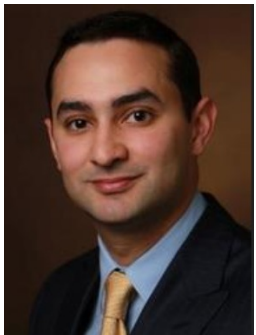
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PG, FY2020

Principal Research Investigators

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Community Partners

Timothy Eads, *Belle Meade Police Department*
Jim Hawk, *Neighbor 2 Neighbor*
Multiple neighborhood associations



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Computer Science



Sarah Igo
History, Law



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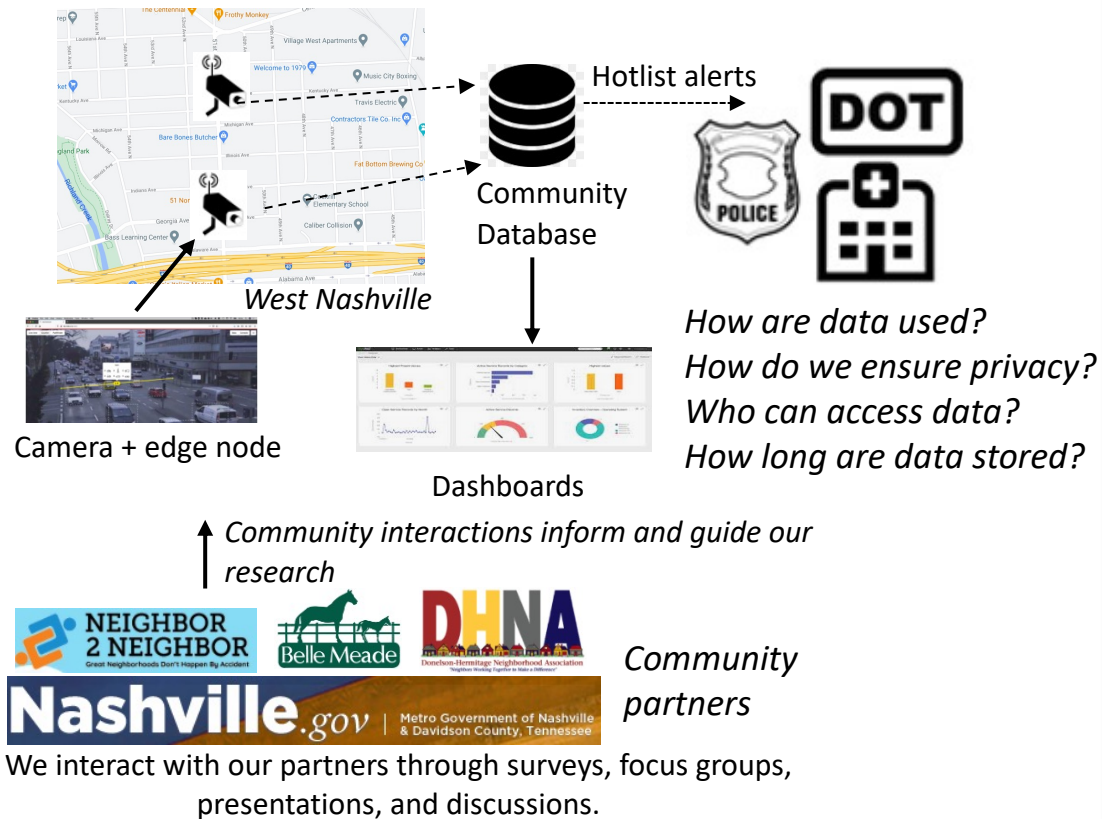


Christopher Slobogin
Law

Project Overview

Visual Schematic

Research question: how can data that are **community contributed and community maintained** improve public safety?



Project Vision for IRG Proposal

- **Fundamental research advances**
 - Edge computing research
 - Social research on the legal, data privacy, and public safety concerns with this technology
- **Applied research components**
 - Privacy preserving features using synthesized data
 - Power-efficient edge algorithms
- **Pilot activities within the community**
 - Deployment of technical prototype to multiple neighborhoods
 - Integration with community stakeholders
 - Ongoing community engagement

Project Overview

Use-Inspired Research

Our project is driven by the needs of communities in Nashville, TN, to improve their public safety and well-being but also to protect the privacy of residents' personal information. Our research studies how data systems that are community-contributed and community-maintained can be designed to improve public safety without unduly infringing on individual privacy.

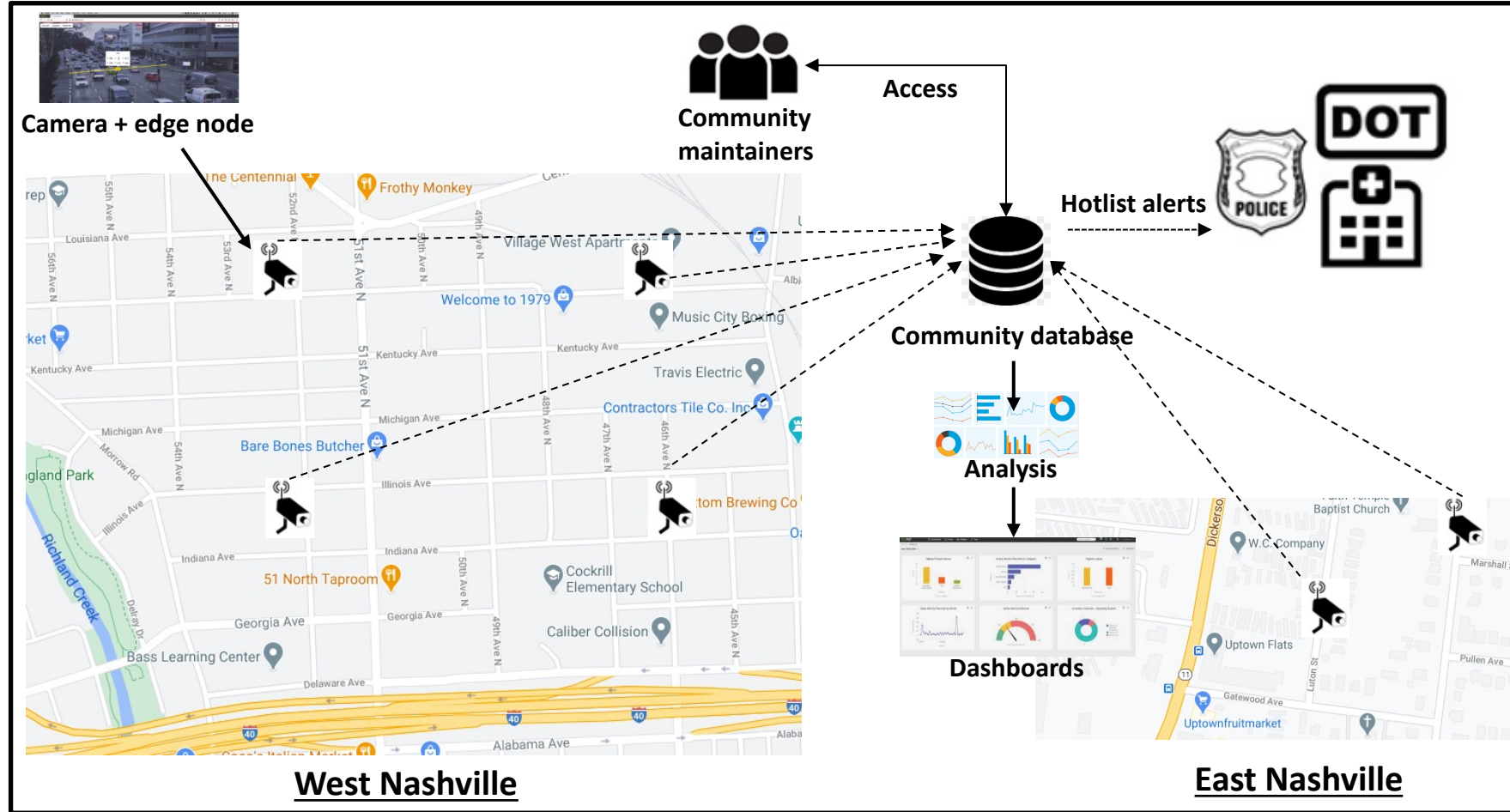
Community partners include:

- Neighbor2Neighbor, a local nonprofit that connects over 100 neighborhood associations
- The Belle Meade Police Department
- Various individual neighborhood associations
- Members of the Metro City Council

PG Activities

- Multiple presentations to city council and neighborhood organizations
- Discussions with local police precinct on data collection and privacy
- Community survey on Automated License Plate Recognition (ALPR)
- Research on algorithms and low-cost hardware for edge computing
- Legal (4th amendment) research on data collection, surveillance, and privacy
- Focus groups to study the concept of community-maintained data

Project Update



Our technical and social research guide and inform one another. Questions include:

- How should data be used?
- What automated analyses are run?
- Who can access data?
- How long is data stored?
- How is privacy ensured?
- How does the “community-maintained” model work?

Activities include: (1) presentations to the city council, (2) discussions with our partner police precinct, (3) a currently running community survey on ALPR, (4) technical research on edge computing, (4) 4th amendment research on surveillance and privacy, (5) upcoming focus groups to dive deeper into the social issues. These activities are guiding our vision for a larger IRG proposal.

Project Evolution

Community engagement has helped us evolve both the social and technical aspects of our long term vision. Below are two specific examples.

Example 1:

One of the initial technologies we proposed was automated license plate recognition (ALPR). As our project started, Nashville was considering an ordinance that would ban even the private use of ALPR. Our team served as subject matter experts in four presentations to the city council, and Professor Slobogin served as a legal expert to city council members and helped author alternative legislation. Our experiences reinforced our dedication to building technical solutions that satisfy the wide-ranging and complex social, legal, and ethical expectations of our community.

Example 2:

As we advertised our project, we received an email from neighborhood association saying that they were interested and attaching photos, which showed bullet holes in houses and cars. Due to rampant crime in that community, their members had banded together and managed to raise several thousand dollars for private security devices. For our team, this showed the real-world, tangible benefits that we can bring, and reinforced the need for low-cost technology that improves public safety.