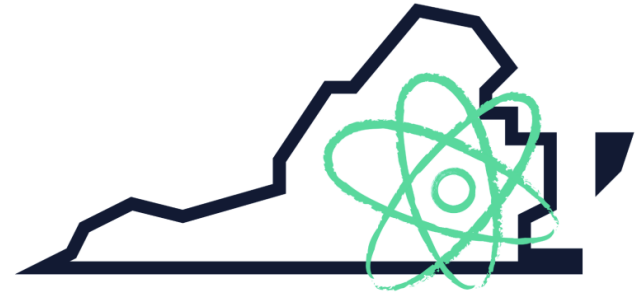# COVES Fellowship with JCOTS

October 18, 2022

VASEM — Virginia Academy of Science, Engineering and Medicine

COVES FELLOWS

COMMONWEALTH OF VIRGINIA
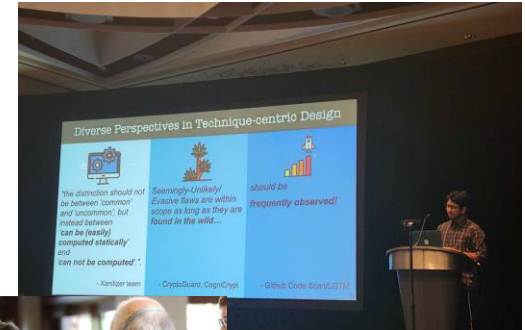ENGINEERING & SCIENCE FELLOWS

AMIT SEAL AMI

Ph.D. Candidate

Cyber-Security and Software Engineering Researcher,

Systematic Analysis of Security Focused Techniques using Novel Research

Secure Platforms Lab

SEMERU

WILLIAM & MARY
CHARTERED 1693

COVES Fellowship with JCOTS

- **Analyzed** Existing Policies, House Bills and Pertinent Issues
  - VCDPA, HB-1246, CCPA, GDPR, and more!
  - Ransomware; relevant Bills & Acts from Pennsylvania, NC, and the Federal Govt.
  - Next Generation Televisions

- **Created** Policy Briefs on IoT and Ransomware

- **Recommended** Steps for VCDPA in the context of IoT
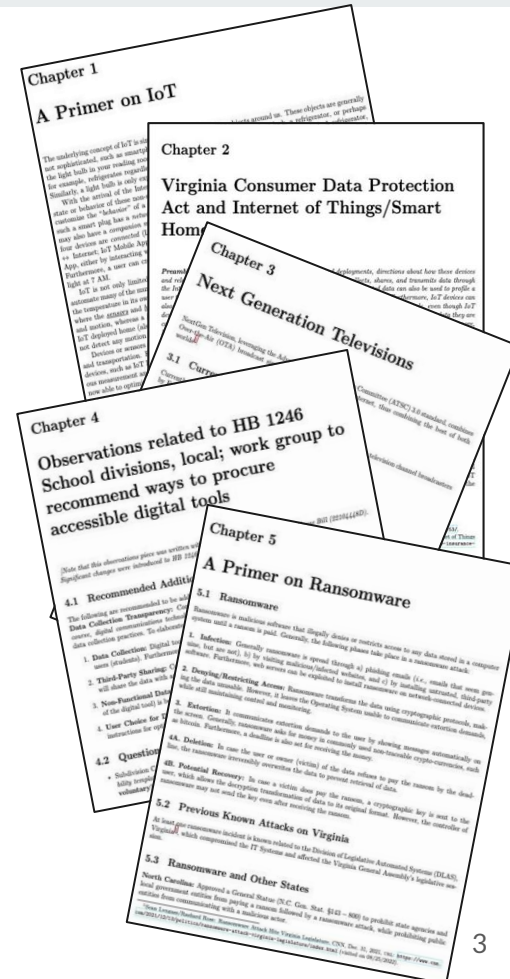
Virginia Consumer Data Protection Act (VCDPA) and IoT/Smart Homes - 1/2

VCDPA (§ 59.1-575 et seq.)

- Protects consumers' rights to data,
- Outlines the responsibilities and privacy protection standards for data controllers and processors, and
- Expected to be applied from 2023.

Virginia Consumer Data Privacy Act (VCDPA) and IoT/Smart Homes - 2/2

Smart Homes / IoT and Privacy Concerns

- Even simplistic IoT devices can profile users and record private behaviors
- Users expect to be informed of their rights related to data in a legally binding document
- In the context of existing Privacy policies, such as GDPR,
  - Significant gap between content and distribution of IoT device specific privacy policies,
  - Opportunities in terms of enforcement of data protection acts and compliance

Recommended Step 1: Introduce Explicit Privacy Notice Distribution Guideline

Context

VCDPA §59.1-578 C mentions that Controllers are expected to provide consumers with a reasonably accessible, clear, and meaningful privacy notice.

Problem

- **43.52%** of vendors do not discuss smart home-related data or devices at all in their privacy notices
- **14.38%** IoT Vendors make IoT Device-specific privacy policies difficult to obtain

Recommendation

Introduce explicit privacy distribution guidelines that specifies how device, website and service specific privacy notices are to be distributed to the consumers.

Recommended Step 2: Enable Standards of Privacy Notices to facilitate Automated Analysis and Enforcement of Compliance

Context

Controllers shall include

i) The categories of personal data processed by the controller, and

ii) the purpose for processing personal data

Problem

- **69.01%** privacy notices cannot be automatically analyzed due to unorthodox approach adoption
- **65.49%** privacy notices do not specify data collection categories

Recommendation

Create/adopt a machine-readable standard for specifying and communicating privacy notices, that helps automate analysis and enforcement of privacy compliance.

Next Generation Televisions

Combines the best of both worlds:

- Display broadcasted programs, with augmentations using the Internet
- Higher resolution (up to 4K Ultra High Definition Broadcast)
- Advanced Warning and Response Network System with remote triggers
- Bi-directional Communication between televisions and broadcasters

Next Generation Televisions - Privacy Concerns

- Next-generation televisions establishes two-way connections between broadcasters and viewers, thus **enables viewer profiling**
- **Privacy violations are widespread** for *streaming service based channels*, such as Roku TV and Amazon Fire in the USA
- **Broadcasters focus on personalized advertisements** based on private data collected across social media accounts, location, and primary interests
- **Scope and type of data collection remains unclear** in the Next Gen TV standards, as of July 2022
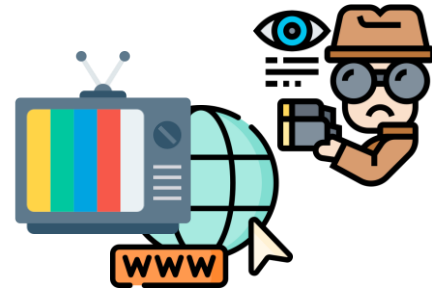
Next Gen Televisions - Recommendations

- CoV can introduce policies that can help protect public interest and privacy
- Roku TV limits privacy violation practices by default for all devices in European Union to comply with the General Data Protection Regular (GDPR)

Path Forward

We research on holistic cybersecurity

- Privacy Policies and their impact
- Evaluation of Security Compliance Enforcement Techniques
- Effectiveness of Compliance Enforcement

We also need to understand

- Diverse perspectives of policymakers,
- Trade-offs in policy making

Let's continue the collaboration to continue making policies for greater public interest!

Amit Seal Ami,

aami at wm.edu, +1 757-839-4897

https://amitsealami.com/contact

Research Labs:

https://spl-wm.github.io/

https://www.cs.wm.edu/semeru/