

6a.051.UVA - IoT Data Trustworthiness and Sentinels

Year 6 - Deep Dive Video

[6a.051.UVA_Deep Dive Video \(7:50 minutes\)](#)

Project Description

This research project developed algorithmic approaches to evaluating the trustworthiness of data in large internet of things (IoT) networks. This project focused on the trust assessment of individual pieces of data as it moves through an IoT network. This is different from constructing trust models for individual nodes in the network. We defined trustworthiness as a measure of how closely data supplied to an end user matches the data true value of the data at the source. Data can be corrupted either through natural degradation of the system or by intentional malicious attacks, such as cyber attacks. In this project, we do not distinguish between the two and desire a methodology that can adequately evaluate trustworthiness in both circumstances.

This project utilized a smart home energy consumption data set in its analysis. This data set was originally constructed to predict energy consumption of appliances within the house. However, several IoT devices were used to collect environmental data within the home. In the original study that collected the data, the sensor data, coupled with weather data, was used to create data-driven models for predicting the energy consumption. We first built a simulation of the data so that we could inject noise and faults into any data stream within the data set. Next, we developed a data-driven algorithm for estimating a trust score for data collected by the IoT network. The trust score is estimated using information from the other sensors in the network and does not rely on past data from the sensor.

Project Team

Team Member	Role	Email	Phone Number	Academic Sites/Industry Members
Stephen Adams	PI	stephen.adams	(434) 924-8082	University of Virginia
Peter Beling	Co-PI	Peter.Beling	(434) 982-2066	University of Virginia
Steven Greenspan	IAB Project Mentor	steven.greenspan@ca.com	Not available	Funded by: CA Technologies

Project Deliverables

	Deliverable
1.	Literature review
2.	Code for existing trust models
3.	Simulation test bed
4.	New trust models

Project Documents

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CVDI 2017 IAB Fall Meeting





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CVDI 2018 IAB Fall Meeting





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CVDI 2018 IAB Spring Meeting





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CVDI 2019 IAB Fall Meeting





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CVDI 2019 IAB Spring Meeting





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CVDI Calendar





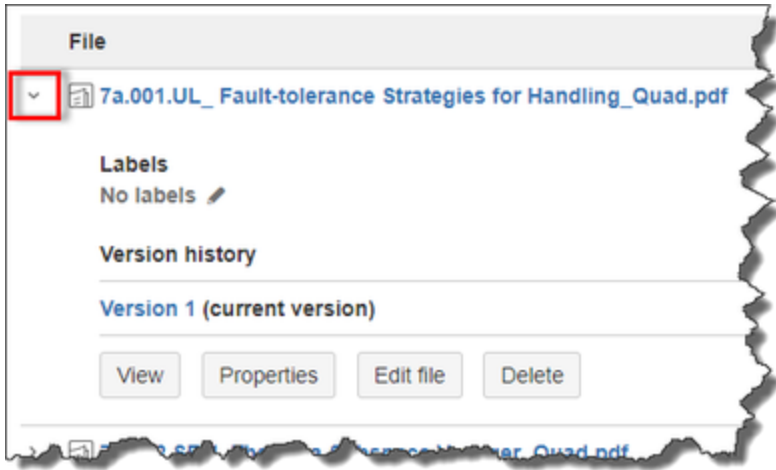
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CVDI Leadership (All Sites)



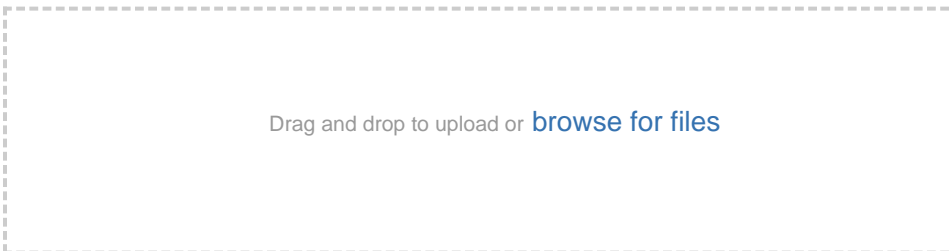


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CVDI





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> 6a.051.UVA_Posters_PDF.pdf	Oct 11, 2017 by Sally Johnson
> 6a.051.UVA_Posters_PPT.pptx	Oct 11, 2017 by Sally Johnson
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> 6a.051.UVA_Quad Chart.pptx	Oct 11, 2017 by Sally Johnson
> 6a.051.UVA_Executive Summary.docx	Oct 11, 2017 by Sally Johnson
> 11-10-2017 11-28-32 AM.png	Nov 10, 2017 by Sally Johnson
> 6a.051.UVA_IoT Data Trustworthiness and Sentinels_Poster_2017 Fall Meeting.pptx	Nov 13, 2017 by Sally Johnson
> 6a.051.UVA_CVDI Mid-Year Report.docx	Dec 27, 2017 by Sally Johnson
> 6a.051.UVA_Posters_2018 Spring Meeting.pptx	Mar 15, 2018 by Sally Johnson
> 6a.051.UVA Final Project Report.docx	Jul 22, 2018 by stephen adams



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Project Comments

	Marketing Materials	★ ☆
	CVDI Reports & Document Library	+ ★ ☆
	CVDI SITE (Drexel University)	+ ★ ☆
	CVDI SITE (Stony Brook University)	+ ★ ☆
	CVDI SITE (Tampere University)	+ ★ ☆
	CVDI SITE (University of Louisiana at Lafayette)	+ ★ ☆
	CVDI SITE (University of North Carolina at Charlotte)	+ ★ ☆
	CVDI SITE (University of Virginia)	+ ★ ☆
	IAB - Industry Advisory Board	+ ★ ☆
	Year 6 - Funded Projects (7/1/17 - 6/30/18)	+ ★ ☆
	Year 7 - Funded Projects (7/1/18 - 6/30/19)	+ ★ ☆
	Year 8 - Proposed Projects	+ ★ ☆

