

SRI40: Student Research Innovations 2020

Special Track along with eLmL 2020

The Twelfth International Conference on Mobile, Hybrid, and On-line Learning

November 21, 2020 to November 25, 2020 - Valencia, Spain

<https://www.iaria.org/conferences2020/CfPeLmL20.html>

Dr. Melissa Stange

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SIR40 Chair/Coordinator



Dr. Melissa Stange received here PhD from Walden University, Minneapolis, Minnesota, USA. She is Program Lead and Professor of Computer Science. Her research areas are curriculum design, K-12 Computer Science inclusion, decision science, computing for users with disability, cybersecurity, and importance of undergraduate research and publication.

About the SRI40 Special Track

Goal

- To provide students with an opportunity to share their research to gain valuable international feedback on their research.

Topics of Interest

- Cybersecurity
- Contrasting student and academic perspectives and experiences of student engagement
- Smart Curriculum Design
- Internet of Things in CS Education
- Modeling Global Competencies for Online Education
- Simulation/Virtual Reality
- Blockchain
- Computer, Technology, Education

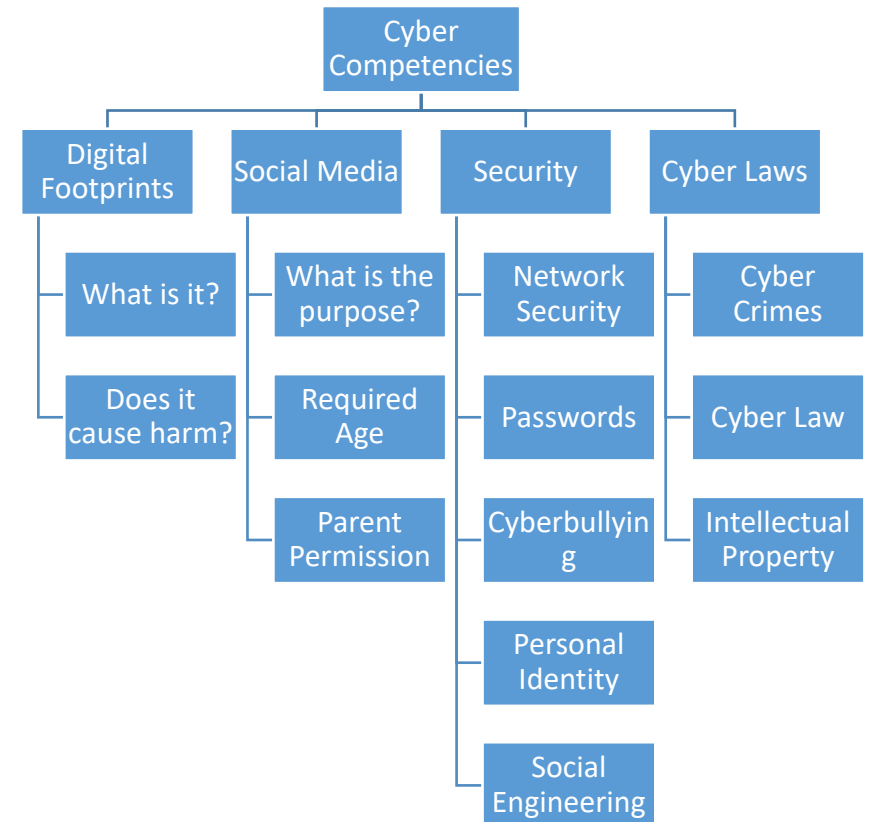
Summary of Contributions (1)

Title: Incorporating Cyber Competencies in K-12

Author: Rachel Stange

Paper ID: 58008

- Educators & Staff Cyber Training
- Cyber Taskforce collaboration
- Relevant and relatable speakers at a local level
- Continuous improvement and generational examples
- Decrease in K-12 cyber distress
- Increase interest in Computer Science and Cybersecurity courses



Summary of Contributions (2)

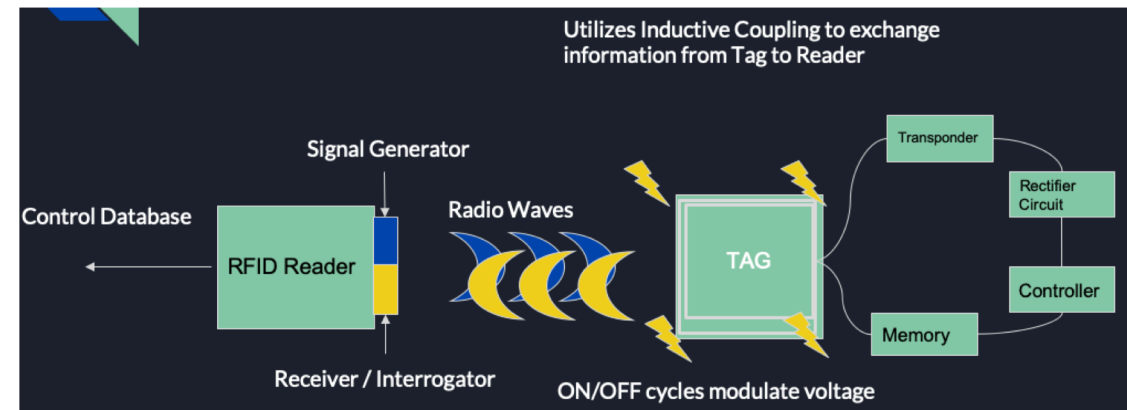
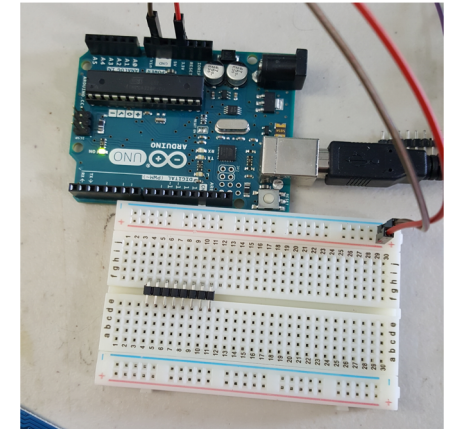
Title:

Exploitation of Radio Frequency Technologies Through the use of Microcontrollers

Author: Daniel Joachim

Paper ID: 58009

- An attempt to break the encryption of the German “Schoko Ticket” and District of Columbia “Metro” MiFARE cards
- The Arduino Uno Rev3 was the microcontroller paired with the RFID-RC522 RFID reader-writer to conduct tag enumeration and reading/writing
- DESFire encryption implementations that surpass the devices used to enumerate the cards during the time of research



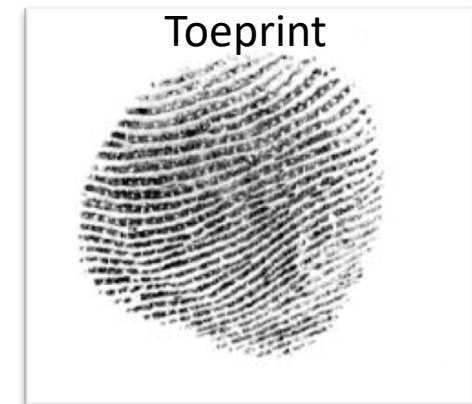
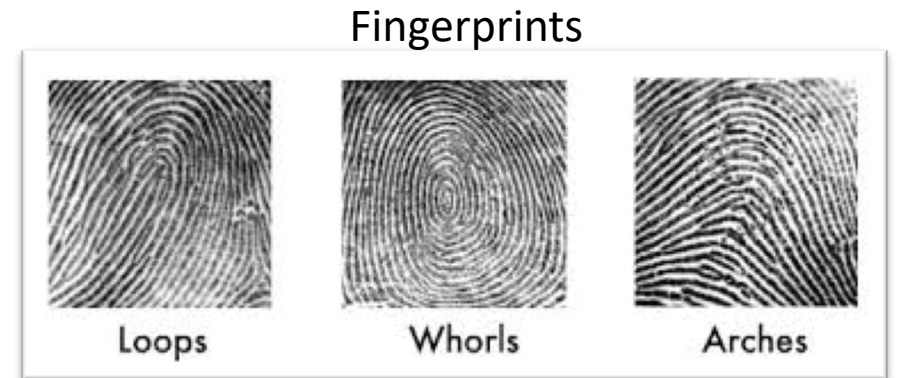
Summary of Contributions (3)

Title: Fingers And Toes: The Hidden BioMetric Story

Author: Rachel Stange

Paper ID: 58010

- Fingerprints & Toeprints use the same classification systems
- Blood Sibling fingerprints are similar with slight difference in classifications
- Blood Siblings have similar toeprints created during fetus development, but may be altered by life events



Future Challenges

Instructional Support

- How to financial support students researchers with shrinking budgets?
- How to conduct research safely during pandemics in confined spaces?
- How to justifying traditional in-person presentations and conferences?

Undergraduate Research

- How to develop and maintain undergraduate research programs?
- How to increase undergraduate research submissions?
- Ways to include research methodology within undergraduate course work?

Increasing Networking

- How to share benefits outside of academics?
- Ways to increase financial support from industry?
- What is needed to increase the number virtual student research teams?