# Makya Stell

makyastell@yahoo.com
(405) 921-7794
makyastell.webnode.com
LinkedIn: Makya Stell

## EDUCATION

**University of Oklahoma, Norman, OK**,
*Master of Science in Computer Engineering*, GPA: 4.0 — May 2023

**University of Oklahoma, Norman, OK**,
*Bachelor of Science in Computer Engineering*, GPA: 3.17
Accelerated BS/MS in ECE — May 2022

## RESEARCH

**Anatomizing Transient Execution Attacks and Countermeasures** — Norman, OK
*Spectre, Meltdown, and LVI Attacks* — December 2021 - May 2022

This research aims to examine transient execution attacks and their implications on CPU security. To establish a deeper understanding of transient execution attacks, I conducted qualitative research and reproduced these attacks on modern CPUs. I am also investigating various mitigation techniques and evaluating their advantages, disadvantages, and recommended enhancements.
**Supervised 1 undergraduate student while conducting research for this project.**

**OU Data Lab** — Norman, OK
*VIPER Project* — January 2019 - January 2023

This research defines and analyzes visual privacy leaks within the context of social media networks and smart cities. I conducted qualitative research and administered surveys to improve our knowledge of visual privacy leaks, employ text analysis techniques, and train models using computer vision and machine learning. Furthermore, I propose the use of supervised learning techniques for identifying and scoring private visual content, as well as the implementation of the mitigation techniques outlined in my research. A trained object detection model was implemented into a mobile application to evaluate its effectiveness in detecting and mitigating visual privacy leaks.
**Supervised 7 undergraduate students while conducting research for this project.**

## PUBLICATIONS

**Journals**
DeHart, J., **Stell, M.**, & Grant, C., *Social Media and the Scourge of Visual Privacy*, Information (MDPI). Special Issue: End of Privacy? 11(2), 57. 2020.

**Reports & Articles**
**Stell, M.**, Stone, A. & Barnes, R., *Analysis of CPU Vulnerabilities*, 2022.
**Stell, M.** & Grant, C., *Visual Safety, & Security*, 2022.
**Stell, M.** Xiong, T., Immenschuh, A., DeHart, J. & Grant, C., *Privacy Leak Mitigation in iOS Social Media Image Sharing*, 2023.

## PRESENTATIONS

Mitigating Visual Privacy Leaks on Social Media Networks. University of Oklahoma's AI Symposium. January 2023.
Visual Security and Safety (VSS). 27th Annual OK-LSAMP Research Symposium. October 2021.
Analysis of Visual Privacy Leaks on Twitter. 26th Annual OK-LSAMP Research Symposium. ZOOM. 2020.
Analysis of Visual Privacy Leaks on Twitter. National Conferences on Undergraduate Research (NCUR). Bozeman, Montana. 2020.

## EXPERIENCE

**Northrop Grumman** — Midwest City, OK
*Associate Software Developer* — June 2022 - Present

- Assigned as Team Lead in charge of 2 other developers on a project where we conducted Research and Development while establishing a simulated environment in C within QEMU, writing tests, and developing 30 pages of documentation.
- Using Jira and Agile to organize and allocate work, develop tools and Windows Presentation Foundation (WPF) apps using C++, C, XAML, LabView, and Python, add newly discovered bugs and features to the backlog, and track the number of story points completed per sprint.
- Received a security clearance level of TOP SECRET through the Defense Counterintelligence and Security Agency effective 01/25/2023.

**Gallogly College of Engineering** — Norman, OK
*Graduate Teaching Assistant* — August 2022 - Present

- Assisted 167 students with Computer Architecture concepts and conveying high-level programming using Assembly Language (RISC).
- Received teaching certification through the Univesity of Oklahoma where I completed courses in Communication Strategies, Inclusivity, Organizational Skills, Engaging Audiences, and Diffusing Conflicts.

**Synopsys, Inc.** — Sunnyvale, CA
*Solutions Group: Technical Engineering Intern* — June 2022 - September 2022

- Developed a python script to automate the process of calculating the cone of influence (COI) while employing failure modes, effects, and diagnostic analysis (FMEDA).
- Automated the team's distribution of the most recent block diagram within the safety manual by creating a macro with Microsoft VBA to automatically locate and update the previous diagram with the most recent file.
- Created a presentation and a 20 paged manual that I presented to the team allowed them to understand the scripts I created, what calculations I used to obtain the results, and what files are needed to run the generated scripts.
- Analyzed over 200 Jiras and constructed a consolidated spreadsheet to present to the team, allowing us to determine how quickly we closed stories or subtasks depending on the number of comments.

**The Ronnie K. Irani Center for the Creation of Economic Wealth** — Norman, OK
*Software Developer Team Lead* — June 2022 - December 2022

- Led a team of 5 developers while creating a mobile application to assist a target market of 2.8 billion dollars.
- Used Agile practices and Swift UI during development.
- Lead daily scrum meetings while also overseeing sprints and presentations that the team carried out.

*Software Developer Intern* — January 2022 - May 2022

- Developed a web application to assist a target market of 1.1 billion dollars.
- Implemented React.js and CSS to develop a website within a team of 3 other developers.

**Oklahoma Army National Guard** — Mustang, OK
*205th Signal Company Platoon Leader* — August 2018 - Present

- Maintenance Officer and Command Maintenance Discipline Program (CMDP) Coordinator who is overseeing the maintenance program and a team of 9 soldiers

  - Received an Army Commendation Medal for going above and beyond my assigned duties, exceptional leadership, and commitment to upholding proper military processes while developing the standard operating procedures for the CMDP.
  - Received an Army Achievement Medal for increasing the maintenance inspection score from 40% to 80% within 3 months of holding the position.
  - Achieved the highest maintenance inspection score in the state of Oklahoma, receiving a 97%.
- Leading 14 win-t (network) soldiers as the second platoon leader and ensuring soldiers stayed up to date on all certifications and training.
- Received network training and certification on the Blue-Sky Net Mast Direct System to assist with disaster relief.
- Served as S-2 and Convoy Commander during Annual Training, successfully completing a 170-mile convoy operation where I lead 30 vehicles and 120 soldiers.
- Received a security clearance level SECRET through the Personnel Security Investigation Center effective 12/11/2018.

**Modification Application & Systems, LLC.** Norman, OK
*Founder/CEO* August 2018 - Present

- Successfully operating a business that has assisted over 200 clients within their web development projects
  - Using WordPress, plugins, HTML, and CSS to develop websites for clients
- Employed, trained, and currently overseeing 6 web developers to assist with the company's projects

## COURSEWORK

| | |
|---|---|
| Programming Structures & Abstractions (Java) | Electrical Circuits 1 & 2 (MATLAB) |
| Probabilities & Stats Processes (MATLAB) | Microprocessor System Design (C++) |
| Digital Design Lab (C) | Measurement & Automation (LabVIEW) |
| Software Engineering (AWS/GCP) | Computer Architecture (Assembly) |
| Advanced Computer Architecture (Assembly) | Digital Design |
| Circuits Lab (PCB Fabrication) | Electronics Lab |
| Network Science (Python) | Database Management Systems (SQL) |
| Data Mining (R) | Digital Signals Processing (MATLAB) |
| Applied Statistical Methods (R) | Computer Vision (Python) |

## COMPUTER SKILLS

**Languages and Concepts**: C++, C, C#, Java, Python, Assembly Language, Verilog, SQL, Scripting (Python / Shell), R, XAML, HTML, CSS, JavaScript, ReactJS.

**Packages and Libraries**: Pandas, Selenium, openpyxl, XlsxWriter, PyTorch, Tensorflow, OpenCV, Tensor, Keras.

**Software**: MATLAB, NI LabVIEW, Multisim, Eagle, MS Office Suite, Gitbash, PowerShell, Putty, Google Cloud SDK Shell, Node.js, Jira Atlassian, Amazon Web Services, Google Cloud Platform, Perforce, Data Modeler, R Studio,

**Integrated Development Environment**: VMWare, Virtual Box, Eclipse, Microsoft Visual Studio, MCUXpresso, Notepad++, GNU Emacs, Jupyter Notebook, Azure Data Studio

**Operating Systems**: Windows, Linux, macOS

**Lab and Hardware Skills**: Oscilloscopes, Waveform Generators, Multimeters, Soldering, Breadboard Layout, PCB Design, and Fabrication

*Others*: Github, ARChitecture (https://github.com/makya-stell)

**AWARDS AND RECOGNITION**

Telesign: Black History Month Celebration Panelist (2023)
OU AI Symposium 1st Place Oral Presenter (2023)
Army Commendation Medal (2022)
Legacy Builder Award (2022)
Outstanding NPHC Senior (2022)
GEM Fellowship (2022)
Outstanding Greek Senior (2022)
President's Honor Roll (2021)
OU Diversity Equity and Inclusion Newsletter Volume 17 Mention (2021)
GCoE Undergraduates Making Their Mark in Research Mention (2021)
The Oklahoman: Achievers Mention (2021)
OK-LSAMP 1st place Non-Life Sciences Poster Presenter (2021)
William H. Barkow Scholarship Recipient (2021)
College of Engineering (CoE) Scholarship Recipient (2021)
Earnest W. Reynolds Scholarship Recipient (2021)
OU's School of Computer Science Mention (2020)
Dean's Honor Roll (2020)
Army Achievement Medal (2020)
Military Order of the World Wars (2019)
Dr. Wayne Jones Fulfilling the Legacy Award (2018)
Colonel Henry "Hank" Tuell Award (2018)
NSBE Freshman of the Year (2018)
The George McLaurin  Sylvia A. Lewis Conference Scholarship (2017)

**RELEVANT PROJECTS**

**Capstone Design - "Spiers Photo Booth Project"** Spring 2022

Using LabVIEW and downloaded libraries, we designed a program that allows employees to log in using a card reader. Once logged in, employees can take multiple images of a battery from multiple angles using a button. Once the images are taken, the employee can confirm the validity of the images and save them to ALFRED.

**Digital Design Lab - "Generating Square Waves"** Fall 2021

The goal was to demonstrate how to produce an 11 MHz square wave with a duty cycle of 50% using C software development and hardware integration. The LPC1769 micro-controller was configured within the software to generate the square wave and configure the PLL0. Within hardware, a 4 MHz crystal was used as part of a hardware oscillator, then connected the output to the clock multiplier/divider to boost the frequency to 11 MHz.

**Digital Design Lab - "Oscilloscope Manipulation"** Fall 2021

The goal of this project was to use C to build a program that could calculate the wait_ticks() function so that the high time would be 20ms and the low time would be 180ms. The cursors on the oscilloscopes were used to find the time of the waves. The value (x) was calculated using these times for wait_ticks() to achieve the high and low times.

**Digital Design Lab - "Tic Tac Toe Game"** Fall 2021

Utilize the LPC1769 LPCXpresso board and C to create a grid of 9 bi-colored LEDs controlled by a matching grid of switches allowing two users to play a tic-tac-toe game. The program accepts the buttons presses as player inputs and automatically switches off turns between players, beginning with Player 1 (Yellow) followed by Player 2 (Green).

**Microprocessor System Design - "Digital Thermometer"** Spring 2021

Designed and implemented a thermometer using a mbed microprocessor, C++, an MCP9700A, and a 7-segment display. The mbed was programmed using C++ to read the MCP9700A. This reading was converted to a number in Celcius or Fahrenheit

depending on whether the MCP9700A was connected to power or GND. Each digit of the reading was displayed one at a time for 1 second, followed by a C or F for the unit, then the display was blanked for 0.1 seconds.

**OUDL - "Analysis of Visual Privacy Leaks on Twitter"** Spring 2021
A survey was deployed to understand users' perception of privacy along with hashtags and keywords associated with privacy leaks these users have seen used to post visual privacy leaks. A web scraper was created using Python and tweepy, and, using the data gathered from the survey, images were collected via Twitter. From this scraper, 18,751 images were collected and analyzed. These images were then classified into three categories based on severity.

**OUDL - "Visual Safety & Security (VSS) Software"** Spring 2022
Python and detecto were used to develop multiple object detection models for detecting private information in images. These object detection models were used to determine the accuracy of each individual model. Saliency models were implemented to identify areas for model improvement. After confirming the viability of each model, they were combined using CreateML. Statistics were collected and used to generate loss function plots to assess the model's precision on a test set of images containing private information. Swift was used to build an iOS Instagram clone application. The CreateML model was integrated into the clone to simulate VSS usage.

**MEMBERSHIP**

OU Vice President's Advisory Council (VPAC), 2021
National Pan-Hellenic Council (NPHC) President, 2020-2021
Delta Sigma Theta Sorority, Inc. Treasurer, 2020 - Present
Oklahoma Louis Stokes Alliance for Minority Participation (OK-LSAMP) Scholar, 2020 - Present
Stomp Down Executive Committee, 2018 - 2020
National Society of Black Engineers Pre-Collegiate Initiative Committee, 2018 - 2019
Women in Engineering (WiE), 2017 – 2019
Women in Computing (WiC), 2017 - 2019
National Society of Black Engineers (NSBE), 2017 - Present
Black Student Association, 2017 - Present
Army Reserve Officer Training Corps (ROTC), 2017 - Present