

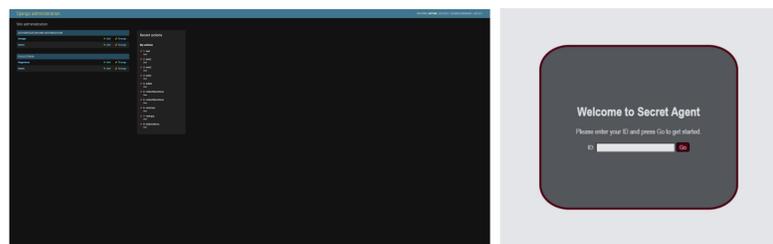
# Secret Agent: Behavioral-Biometric Continuous Authentication Summer 2022

## Is your typing really your own? Or can it be an algorithm's

### Team Members

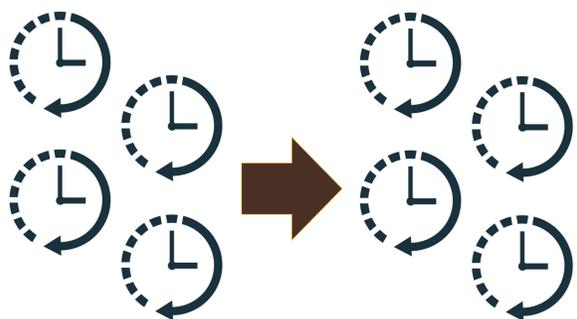
Danny Radosevich  
 Matt Bare  
 Cody Danielson  
 Matt Baker  
 Honorable thanks: Addie Reichert

### Website



### Stage One: Parrot

- SecretAgent takes in user typing rhythm
- It then parrots the exact timings back to the continuous authentication method
- This is the simplest stage, to check if basic exact typing matches will pass the authentication

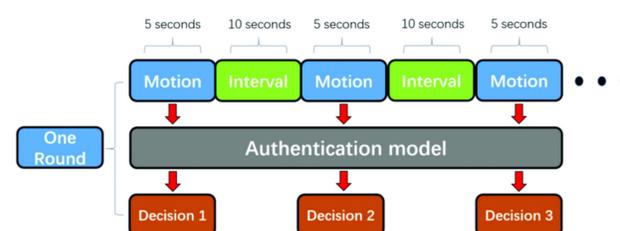


<https://i.did2-vectorstock.com/100x1000/6876/5img-con-monochrome-style-design-from-business-vector-3206876.jpg>

<https://220x220-wiki-wikipedia.net/other/images/9/94/Cracker01.jpg?revision=latest&fc=01/04/2013/08>

### Problem Statement

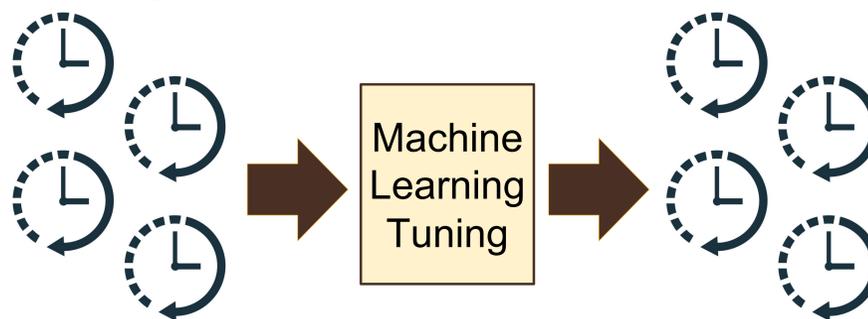
- Continuous authentication is a form of ongoing zero-trust identity confirmation
- Learns typing patterns to impersonate users, subverting the continuous authentication
- Considers two stages to find the minimal level needed to subvert continuous authentication
- Uses a web-based client to collect data



<https://www.researchgate.net/publication/322381123/figure/fig12/AS:61443958120453@151503840440/The-diagram-of-the-continuous-authentication-scheme.png>

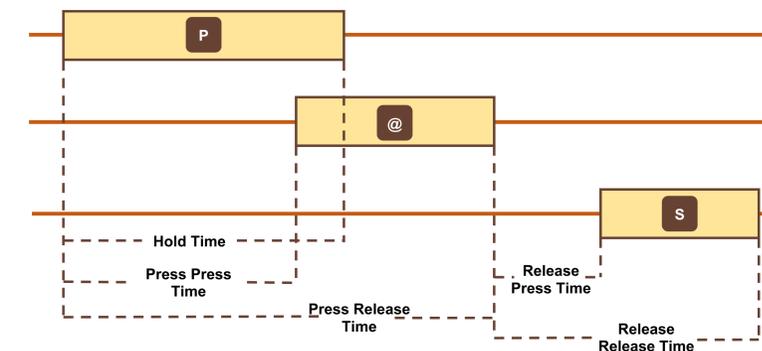
### Step Two: Averages

- SecretAgent takes averages of the typing dynamics of the input
- It then feeds those against the continuous authentication
- It tunes the averages until it succeeds in fooling the continuous authentication



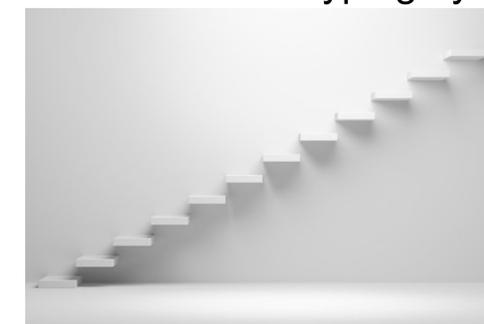
### Background

The work in Secret Agent is based on a previous CEDAR project, Spy Hunter. Spy Hunter authenticates users based on typing patterns. This type of continuous authentication is useful for the purpose of being able to protect an unlocked system.



### Future Steps

- A hardware rubber ducky implementation
- Introducing “noise” to not produce perfect patterns
- Introducing a ML implementation that learns based on stolen typing dynamics



[https://t3.ftcdn.net/jpg/01/48/83/92/360\\_F\\_148839242\\_acNKg4kLQV5PICK2vEZfgdYoxjTeBA4.jpg](https://t3.ftcdn.net/jpg/01/48/83/92/360_F_148839242_acNKg4kLQV5PICK2vEZfgdYoxjTeBA4.jpg)

Advisor: Dr. Mike Borowczak (mike.borowczak@uwyo.edu)  
 Graduate Student Mentors:  
 Danny Radosevich (dradose1@uwyo.edu)

