# Carnegie Mellon University
## Master of Science in Information Technology

# privacy ENGINEERING

# Privacy Seminar

## Speaker: Omer Akgul

## Title:
## Investigating Influencer VPN Ads on YouTube

## Abstract:

One widespread, but frequently overlooked, source of security information is influencer marketing ads on YouTube for security and privacy products such as VPNs. This talk examines how widespread these ads are, what kind of information they convey, and what impact they might have. Starting from a random sample of 1.4% of YouTube, we identify 243 videos containing VPN ads with a total of 63 million views. Our estimates suggest that this scales up to billions of views across all of YouTube. Using qualitative analysis, we find that these ads commonly discuss broad security guarantees as well as specific technical features, frequently focus on internet threats, and sometimes emphasize accessing otherwise unavailable content. We find a number of potentially misleading claims, including overpromises and exaggerations that could negatively influence viewers' mental models of internet safety. As such, we explore the relationship between YouTube VPN ad exposure and users' mental models of VPNs, security, and privacy. We use a novel VPN ad detection model to calculate the ad exposure of 217 participants via their YouTube watch histories, and we develop scales to characterize their mental models in relation to claims commonly made in VPN ads. We find that exposure to VPN ads is significantly correlated with familiarity with VPN brands and increased belief in often-unrealistic threats. In contrast, we find no significant correlation between exposure to VPN ads and belief in factual or misleading mental models about VPNs themselves. These findings suggest that the impact of VPN ads on user mental models is predominantly emotional (i.e., perception of threats) rather than technical. We recommend increased oversight of such ads to alleviate belief in unrealistic threats.

## Bio:

Omer Akgul is a postdoctoral researcher at CyLab, Carnegie Mellon University. His research broadly spans human factors in security & privacy, with a focus on investigating and improving mental models of secure communication tools, uncovering friction in security professionals' workflows, and understanding ads on the internet. His work is regularly accepted to prominent security & privacy venues and has received a best paper award at USENIX Security '23. Advised by Michelle Mazurek, Omer received his PhD in Computer Science from the University of Maryland, College Park.

**WHEN:** **January 16th** 2023 12:30-1:50pm

**WHERE:** Hamburg Hall Room 1002

ZOOM LINK:
https://cmu.zoom.us/j/97389172852?pwd=Q2Q5MEE2b29TaS9VeDQ4VHVXckV2dz09