

# Christian Peeters, Ph.D.

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## Profile

Dr. Christian Peeters is a Senior Research Scientist at Harbor Labs. His research interests include cellular network security, digital payment security, hardware security, and systems security. He specializes in device security, *reverse engineering*, and software and hardware design.

# Education

2022	University of Florida	Ph.D. Computer Science
2020	University of Florida	M.S. Computer Engineering
2016	Elizabethtown College	B.S. Computer Engineering & Electrical Engineering

# **Work Experience**

11/2022 - Present	Harbor Labs <b>Senior Research Scientist</b>	<ul> <li>Assisting with patent review</li> <li>Cellular networking expert</li> <li>Hardware reverse engineer and penetration tester</li> </ul>
08/2016 - 09/2022	Florida Institute for Cybersecurity Research <b>Research Assistant</b>	<ul> <li>Research Interests: General Cybersecurity, Cellular Network Security, Digital Payment Security, Adversarial Machine Learning</li> <li>Authored over 10 different research projects, many of which have been published at top academic conferences in cybersecurity</li> <li>Lead several research projects that required managing time, resources, and the efforts of other PhD students</li> <li>Collaborated with researchers across several different academic backgrounds on joint projects</li> </ul>
05/2018 - 01/2022	Skim Reaper LLC. Chief Technology Officer	<ul> <li>Skim Reaper LLC is a small start-up company that spun off from a research publication I worked on at UF involving the detection of magnetic stripe card skimmers.</li> <li>Responsibilities: In charge of all product design and development. Point of contact with manufacturers, testing labs, and electronics distributors.</li> </ul>



01/2015 -	Elizabethtown College	<ul> <li>Lecture Courses</li> <li>Provided lectures on course material.</li> <li>Courses: Physics 1, Circuit Analysis, Digital Circuits,</li></ul>
05/2016	<b>Teaching Assistant</b>	Computer Architecture
		<ul> <li>Lab Courses</li> <li>Assisted with lab setup, instructed lab activities, assigned and graded lab reports, developed lab curriculums, individually assisted students both inside and outside of course hours.</li> <li>Courses: Physics 1, Circuit Analysis, Digital Circuits, Control Systems,</li> </ul>

## Academic Awards

Received best paper award at USENIX Security 2018 for "Fear the Reaper: Characterization and Fast Detection of Card Skimmers".

## Academic Research Involvement

Program Committee Member: IEEE Security and Privacy 2024 (S&P '24)

## **Publications**

**C. Peeter**s, T. Tucker, A. Jain, K. Butler, P. Traynor LeopardSeal: Detecting Rogue Base Stations with Acoustic Distance Bounding, In Proceedings of 21st Annual International Conference on Mobile Systems, Applications and Services (MobiSys '23), 2023. (Acceptance Rate: 21%)

**C. Peeters**, C. Patton, I. Sherman, D. Olszewski, T. Shrimpton, P. Traynor SMS OTP Security (SOS): Hardening SMS-Based Two Factor Authentication, In Proceedings of the 2022 ACM Asia Conference on Computer and Communications Security (ASIACCS), 2022. (Acceptance Rate: 24%)

S. King, P. Traynor, Z.A. Din, **C. Peeters**, and H. Venugopala Credit Card Fraud Is a Computer Security Problem, IEEE Security and Privacy Magazine Volume: 19, Issue: 2, 2021

H. Abdullah, M.S. Rahman, **C. Peeters**, W. Garcia, C. Gibson, T. Shrimpton, V. Bindschaedler, P. Traynor Beyond Lp Clipping: Equalization based Psychoacoustic Attacks Against ASRs, Asian Conference on Machine Learning (ACML), 2022. (Acceptance Rate: 29%)

N. Scaife, **C. Peeters**, and P. Traynor More Cowbell: Lessons Learned in Developing the Skim Reaper, IEEE Security and Privacy Magazine Volume: 17, Issue: 4, 2019

N. Scaife, J. Bowers, **C. Peeters**, G. Hernandez, P. Traynor, and L. Anthony Kiss from a Rogue: Evaluating Detectability of Pay-at-the-Pump Card Skimmers, In Proceedings of the IEEE Symposium on Security and Privacy (S&P), 2019. (Acceptance Rate: 12%)

H. Abdullah, W. Garcia, **C. Peeters**, P. Traynor, K. Butler and J. Wilson Practical Hidden Voice Attacks against Speech and Speaker Recognition Systems, Network and Distributed System Security Symposium (NDSS), 2019. (Acceptance Rate: 17%)



N. Scaife, **C. Peeters**, and P. Traynor, Fear the Reaper: Characterization and Fast Detection of Card Skimmers, 27th USENIX Security Symposium, 2018. (Acceptance Rate: 19.1%)

N. Scaife, **C. Peeters**, C. Velez, H. Zhao, P. Traynor, and D. Arnold, The Cards Aren't Alright: Detecting Counterfeit Gift Cards Using Encoding Jitter, In Proceedings of the IEEE Symposium on Security and Privacy (S&P), 2018. (Acceptance Rate: 11.5%)

**C. Peeters**, H. Abdullah, N. Scaife, J. Bowers, P. Traynor, B. Reaves, and K. Butler, SONAR: Detecting SS7 Redirection Attacks with Audio-Based Distance Bounding, In Proceedings of the IEEE Symposium on Security and Privacy (S&P), 2018. (Acceptance Rate: 11.5%)

#### Patents

Method, Apparatus, And System for Detecting Card Skimming Devices (2021). NPROV Appl. No. 17/447,092

Method, Apparatus, And Computer Program Product for Secure Two-Factor Authentication (2021). NPROV Appl. No. 17/446,023

Detecting SS7 Redirection Attacks with Audio-Based Distance Bounding (2021). U.S. Patent No. 11265717

Payment Card Overlay Skimmer Detection (2019). U.S. Patent No. 10936928

Detecting Counterfeit Magnetic Stripe Cards Using Encoding Jitter (2018). U.S. Patent No. 10803261

## **Consulting (Non-Testifying) Litigation Support**

Milliman Inc. v. Gradient A.I. Corp.
 Case: 1:21-cv-10865-NMG
 Location: The District of Massachusetts
 Initial Filing Date: May 25<sup>th</sup>, 2021
 Description: Litigation related to patents on medical insurance software and trade secrets.
 Service: Code Review, Document Review, Expert Report Preparation, Deposition Preparation and Assistance

Simon St-Onge v. Apple Inc. and Apple Canada Inc. Case: 500-06-000893-178 Location: Province of Quebec, District of Montreal Initial Filing Date: November 30<sup>th</sup>, 2017 Description: Class action litigation related to iPhone policy for battery life and performance Service: Expert Report Preparation

WSOU Investments, LLC d/b/a Brazos Licensing and Development v. Cisco Systems, Inc.
 Case: 6:21-CV-00128-ADA
 Location: The Western District of Texas Waco Division
 Initial Filing Date: February 5<sup>th</sup>, 2021
 Description: Litigation related to patents on cellular network core technologies
 Service: Document Review, Declaration Preparation, Expert Report Preparation

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Finjan, LLC v. Palo Alto Networks, Inc.
Case: 4:14-cv-04908-PJH
Location: The Northern District of California
Initial Filing Date: November 4<sup>th</sup>, 2014
Description: Litigation related to patents on network security infrastructure and technologies
Service: Document Review, Declaration Preparation, Expert Report Preparation, Deposition
Preparation and Assistance

The Nielsen Company (US), LLC, v. TVSquared LTD.,
Case: 6:22-cv-00244-ADA
Location: The Western District of Texas Waco Division
Initial Filing Date: March 4<sup>th</sup>, 2022
Description: Litigation related to patents on consumer data acquisition software and techniques
Service: Document Review, Declaration Preparation

Koninklijke KPN N.V. v. Telefonaktiebolaget LM Ericsson et al.,
Case: 2:22-CV-282-JRG
Location: The Eastern District of Texas Marshall Division
Initial Filing Date: July 25<sup>th</sup>, 2022
Description: Litigation related to patents on cellular network core and radio technologies
Service: Code Review, Document Review, Declaration Preparation, Expert Report Preparation,
Deposition Preparation and Assistance

Akamai Technologies, Inc. v. **MediaPointe, Inc. and AMHC, Inc., Case:** 2:22-cv-06233-MCS-AFM **Location:** The Central District of California **Initial Filing Date:** September 1<sup>st</sup>, 2022 **Description:** Litigation related to patents on content distribution network technologies **Service:** Code Review, Document Review, Declaration Preparation, Expert Report Preparation, Deposition Preparation and Assistance

Microsoft Corp. v. **MediaPointe, Inc. and AMHC, Inc., Case:** 2:22-cv-01009-MCS-MRW **Location:** The Central District of California **Initial Filing Date:** February 14<sup>th</sup>, 2022 **Description:** Litigation related to patents on content distribution network technologies **Service:** Document Review, Declaration Preparation, Expert Report Preparation, Deposition Preparation and Assistance

Webroot, Inc. and Open Text, Inc. v. Forcepoint LLC
 Case: 6:22-cv-00342-ADA-DTG
 Location: The Western District of Texas Waco Division
 Initial Filing Date: March 31<sup>st</sup>, 2022
 Description: Litigation related to patents on network security technologies and infrastructure
 Service: Code Review, Document Review, Declaration Preparation, Expert Report Preparation

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McKinney v. **Corsair Case:** 3:22-cv-00312-CRB **Location:** The Northern District of California **Initial Filing Date:** January 14<sup>th</sup>, 2022 **Description:** Class action litigation related to advertised RAM speeds **Service:** System Evaluations, Document Review, Declaration Preparation, Expert Report Preparation, Deposition Preparation and Assistance

# **Technical Expertise**

#### Security and Research Skills:

Network Security	System Security	Adversarial Machine Learning
Advanced Mathematics	Telecommunication Security	Threat Modeling
Academic Paper Writing	Protocol Design	Digital Payments Security
Cryptography	Formal Research Presentation	Statistics
Reverse Engineering	Firmware Security	Project Management

#### **Programming Languages:**

С	C++	Rust	Python
Assembly (x86, ARM)	Erlang	C#	Verilog
R	Java	HTML/CCS	Elixir

#### Software:

Android Development	Firmware	Bash	Digital
	Development		Communications
Data Structures	Advanced Algorithms	Git	Source Code Analysis

#### Hardware/Electrical:

Analog/Digital Circuit Design	Memory Access	Autodesk Eagle/PCB Fabrication
Digital Logic Design	Control Systems	Commercial Product Design
Embedded System Design	ARM Microcontrollers	Wireless Communications
Signal Processing	FPGAs	Software Defined Radios