

Constantine Doumanidis

ELECTRICAL AND COMPUTER ENGINEER

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Education

PhD in Electrical and Computer Engineering

PRINCETON UNIVERSITY

Princeton, New Jersey, USA

Sep. 2023 - May 2028

- **Research Interests:** Networks, Security, Blockchains, Machine Learning, Embedded Systems.

BS & MSc Degree in Electrical and Computer Engineering

ARISTOTLE UNIVERSITY OF THESSALONIKI

Thessaloniki, Greece

Sep. 2016 - Aug. 2021

- **GPA:** 8.93/10 - **Top 5%** of my class. Graduated with highest honors.
- **Specialization Area:** Electronics and Computer Engineering.
- **Thesis:** "[Deep Learning Techniques for Automatic Modulation Classification](#)". Jointly researched with Konstantinos Triaridis. Advised by Dr. George K. Karagiannidis and Dr. Nestor D. Chatzidiamantis.
- **Notable Coursework Projects:**
 1. [RNNNoise-Ex](#): Deep learning hybrid speech enhancement model based on RNNs and spectral features built using Tensorflow.
 2. [Parallel-RCM](#): A parallel OpenMP-based implementation of the Reverse Cuthill-McKee algorithm for sparse matrix bandwidth reduction.
 3. [Ising-CUDA](#): GPU accelerated Ising ferromagnetism model built on Nvidia CUDA.
 4. [APSK-Simulator](#): Dual ring kite-structured APSK simulator for telecommunication systems operating under an AWGN channel.

Experience

Chaincode Labs

RESEARCH INTERN

New York City, USA

Jun. 2025 - Aug. 2025

- Researched Bitcoin's susceptibility to BGP interception attacks by running a measurement study, implementing a path estimation algorithm, developing a proof of concept, and proposing countermeasures.
- Worked on a topology inference attack that can uncover the connections in Bitcoin's P2P overlay graph.

MoMA Lab, Center for Cyber Security, New York University Abu Dhabi

RESEARCH ASSISTANT

Abu Dhabi, United Arab Emirates

Sep. 2021 - Aug. 2023

- Lead and participated in independent and collaborative research. Projects topics included machine learning, hotpatching, fuzzing, and fault injection on industrial control systems, and dataset bias detection in collaborative machine learning environments.
- Assisted in reviewing papers for various venues including USENIX, NDSS, CCS, MICRO, S&P, TDSC, DATE, and DAC.

Google Summer of Code

SOFTWARE ENGINEER

Thessaloniki, Greece

Jun. 2021 - Aug. 2021

- Developed [HA-Auto](#): an open source Domain Specific Language (DSL) for IoT device automation in the open source Home Assistant framework.
- Integrated the HA-Auto DSL in the Node-RED flow-based programming environment.

Professional Service & Awards

Graduate Student Award for Excellence in Service

RECIPIENT

Princeton University

September 2024

- Awarded to graduate students who have demonstrated a sincere commitment to service to the ECE Department, its members and community at large, while accomplishing a high level of academic scholarship.

The William G. Bowen Merit Fellowship

RECIPIENT

Princeton University

2023-2024

- Supported by Mrs. Mary Ellen Bowen.

IEEE Student Branch, Aristotle University of Thessaloniki

BOARD SECRETARY

Thessaloniki, Greece

Jan. 2019 - Feb. 2020

- Organized events (conferences, lectures, workshops etc.), and coordinated the weekly meetings of the student branch.

11th Electrical & Computer Engineering Students Conference (ECESCON/ΣΦΗΜΜΥ)

DIRECTOR OF IT & HEAD ORGANIZER

Thessaloniki, Greece

May 2018 - Apr. 2019

- Three day conference attended by 3000+ people. Hosted 45 speakers, 11 sessions, 17 academic student groups and 8 hands-on workshops.
- Directed the 12 member conference IT team and also acted as co-head organizer.
- Developed the website, mobile app and check-in system. Configured the back end, and live streaming infrastructure of the conference.

Teaching & Mentorship

Teaching Assistant

Prepared lecture materials, evaluated reports, assessed performance, and provided feedback to students in the Information Security and Computer Networks classes at Princeton University, and the Cyberwarfare course at NYU AD. Received nominations for teaching service awards.

Lab Instructor

Developed lab materials on side-channel attacks and ICS security, and assisted lab instruction for the elective Hardware Security course.

Mentor

Mentored two undergraduate Princeton students in their thesis projects: (1) Anya Kalogerakos: *HOWLR: Hijack Observation via Witness-Led Response*. (2) Mirabelle Weinbach: *Gauging the Effects of Network Attacks on Ethereum Proof-of-Stake*. Mentored five undergraduate students for their summer internships with MoMA Lab.

Publications

[Routing Attacks in Ethereum PoS: A Systematic Exploration](#)

CONSTANTINE DOUMANIDIS, MARIA APOSTOLAKI

FC 2026

Mar. 2026

[AetherWeave: Secure Stake-Based Peer Discovery in P2P Networks](#)

KAYA ITO ALPTURER, CONSTANTINE DOUMANIDIS, AVIV ZOHAR

USENIX 2026 - Targeted

May 2026

[ICSQuartz: Scan Cycle-Aware and Vendor-Agnostic Fuzzing for Industrial Control Systems](#)

CORBAN VILLA, CONSTANTINE DOUMANIDIS, HITHAM LAMRI, PRASHANT HARI NARAYAN RAJPUT, MICHAIL MANIATAKOS

NDSS 2025

Feb. 2025

[ICSML: Industrial Control Systems ML Framework for native inference using IEC 61131-3 code](#)

CONSTANTINE DOUMANIDIS, PRASHANT RAJPUT, MICHAIL MANIATAKOS

CPSS 2023

Aug. 2023

[ICSPatch: Automated Vulnerability Localization and Non-Intrusive Hotpatching in Industrial Control Systems using Data Dependence Graphs](#)

PRASHANT RAJPUT, CONSTANTINE DOUMANIDIS, MICHAIL MANIATAKOS

USENIX 2023

Aug. 2023

[FieldFuzz: Enabling vulnerability discovery in Industrial Control Systems supply chain using stateful system-level fuzzing](#)

ANDREI BYTES, PRASHANT RAJPUT, CONSTANTINE DOUMANIDIS, MICHAIL MANIATAKOS, JIANYING ZHOU, NILS OLE TIPPENHAUER

RAID 2023

Sep. 2022

Skills

Languages

• **English:** Native Speaker. • **Greek:** Native Speaker (bilingual).

Technologies

- **Programming Languages:** C, C++, Python, Java, Go, ARM Assembly
- **Reverse Engineering:** IDA Pro, Cutter, radare2
- **Parallel & Distributed Programming:** OpenMP, CUDA, Open MPI, Intel Cilk
- **Databases:** MySQL, MongoDB
- **Deep Learning Frameworks:** Keras, TensorFlow
- **Scientific Tools:** Matlab, Numpy, Pandas, SPSS
- **Web Technologies:** HTML, CSS, JavaScript, Laravel, Flask, React

Projects & Contributions

[ICSREF](#)

A TOOL FOR REVERSE ENGINEERING INDUSTRIAL CONTROL SYSTEMS BINARIES.

- Maintained the project.

Python

[DigiSpark-Scripts | digiQuack](#)

COLLECTION OF BAD-USB SCRIPTS AND HAK5 USB RUBBER DUCKY SCRIPT CONVERTER FOR THE DIGISPARK MICROCONTROLLER

- Created and maintain the projects.

Arduino, C++, HTML/CSS/JS

[OpenAnnePro](#)

AFTERMARKET KEYBOARD FIRMWARE FOR THE ANNE PRO 2 BASED ON QMK AND CHIBIOS

- Programmed the lighting co-processor on the AP2 in the Shine subproject.

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