Ioan Dragomir
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Proficient developer and sysadmin with a great passion for engineering and **cyber security**. With 7 years of non-formal programming experience and 3 years of **Capture The Flag contest** participation, I have greatly developed my understanding of both low- and high-level systems and their security, especially focusing on **static reverse engineering** and efficiently making use of **scripting** languages and community tools to automate my analysis. **Main skills include:**

- Proficiency in Python, C, and the HTML/CSS/JS stack. Competence in C++, TypeScript, and a basic understanding of multiple other programming paradigms. Attention to secure programming practices.
- Familiarity with modern reverse engineering practices and tools: IDA Pro, Ghidra, x64dbg.
- Technical writing, presentation, and teaching skills. Video production to aid teaching.
- Linux system administration and network security.
- Understanding of low-level systems: assembly language, OS internals, various CPU architectures.
- Fundamental electronics and digital signal processing knowledge.

Experience

2021 MARCH - PRESENT

UNbreakable Romania – Cyber security mentor and challenge author

- **Wrote documentation** for various CTF challenge categories meant as guides for beginner players.
- Hosted a webinar on basic **computer networking and the use of tools** such as netcat and pwntools.
- Designed and implemented hackable services for the CTF competition.
- Assisted contestants in learning cyber security by solving tasks from the CyberEdu educational archive.

2017 SEPTEMBER - PRESENT

European Cyber Security Challenge – Team Romania member

Preparing with the team since 2017, I was among the finalists in 2019, helping my team get to 1st place. Specialized on **static reverse engineering**, I have since achieved great performances in CTF competitions, both solo as "trupples", as well as part of the "WreckTheLine" team (ctftime.org/team/57908), strengthening my **teamwork, organization, and communication skills.**

2019 AUGUST - 2020 JANUARY

Banat IT – HackTM CTF organizer

- Managed an online scoreboard platform for the contest, built on the **LEMP stack**.
- Designed and built reverse engineering and binary exploitation exercises, automating many parts of the workflow using **Python**.
- Used **docker** to securely set up and orchestrate task servers which the competitors had to hack into.
- Grew the event's community on social media.

All leading to a flawless qualification round with 747 participating international teams: ctftime.org/event/956

2019 JANUARY - 2019 JULY

jmp0xc0ffee – Event host, workshop organizer

- **Organized a weekly cyber security club** in affiliation with Security Espresso and Orange FAB.
- **Taught** an introductory course in basic reverse engineering, binary exploitation, and network forensics, taking the form of both **presentations, hands-on workshops, and CTF participation.**

2017 NOVEMBER - 2018 JULY

Creative Motion – Linux sysadmin, web developer

- Maintained company **email, DNS, development servers** for internal projects, and the public-facing web server.
- Implemented the 2018 website using vanilla HTML, CSS, JS.

Awards and notable competitions

- **DEF CON CTF Qualifier 2021** – 6th place, team PTB_WTL
- **NSUCRYPTO International Olympiad in Cryptography 2020** – 2 silver medals – solo 15th, teams 15th
- **Hack-A-Sat Qualifiers 2020** – 14th place, team OneSmallHackForMan
- **ACS IXIA CTF 2020** – 1st place
- **CodeGate Junior CTF 2020 Quals** – 1st place
- **DefCamp CTF Finals 2019** – 3rd place, team WreckTheLine
- **European Cyber Security Challenge 2019** – 1st place, team Romania
- **National Olympiad in Informatics –** 2012 (silver), 2013, 2014 (bronze), 2015 (silver), 2016 (bronze), 2019

Projects

CTF Writeups

As an active member of the CTF community and being passionate about teaching others, I create both text and video writeups with in-depth explanations of interesting reverse engineering challenges, especially ones which demonstrate weird custom computing architectures. These include WPI CTF 2019 "breakingin" (youtu.be/yEbAQXDKRKY) and Google CTF 2020 "sprint". (youtu.be/jcUK9VRvzbk)

Interactive physics simulations

Also used as the project for my certificate of professional competence, I created **interactive educational software** for my physics class, based on a **custom JavaScript Entity-Component-System framework**, to aid in teaching the Resonance and Chaos theory lessons. (trupples.github.io/projects/rezonanta, trupples.github.io/projects/haos)

Terminal-based UI explorations

As part of some university assignments, I explored the possibilities of graphical interfaces inside good old 25x80 terminals, both for their artistic value, as well as to better understand human-computer interaction, and how it can be a pleasing experience even on very limited devices. My two applications that make use of terminal graphics are a graphic equalizer written in C (github.com/trupples/kayeq) and a simple side scrolling game in C++. (github.com/trupples/no-internet)

Oscilloscope vector graphics explorations

In late 2020 I bought an old oscilloscope and experimented with various signal generation techniques to display art on its CRT screen, achieving static images, preprogrammed animations, as well as "live streaming" of animations from a computer, (github.com/trupples/oscilloscope-graphics) and also procedural generation of various fractals. (twitter.com/_trupples/status/1373017992993378308)

Education

2020 SEPTEMBER - PRESENT
Technical University of Cluj-Napoca

Bachelor's degree in Automation and Applied Informatics ~ Systems Engineering.

2016 SEPTEMBER - 2020 JULY
"Nicolae Iorga" Theoretical High School

English bilingual mathematics and computer science.

High school diploma:
- B2 level English,
- Certificate of professional competence in web development