

Alberto Fernández de Retana Fernández

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Experience

Research Intern **IMDEA Software** **dic 2021 – aug 2022**

- As an intern, I developed a tool for creating snapshots of the webpages. This research/tool is part of an unfinished project that would be public in some point of the future.
- Supervised by *Srdjan Matic & Juan Caballero*.

Research Technician **RIASC** **oct 2020 – nov 2021**

- Implemented attacks detection (e.g., DDoS) at the network layer using Convolutional Neural Networks (e.g., Resnet18) on NetFlow V5 data from real traffic in the autonomous community of Castilla y Leon. Packets were converted to images before being processed by the CNN.
- Supervised by *Vicente Matellán*.

Research Intern **DeustoTech** **nov 2018 – jul 2020**

- During my bachelor, I started working on the crawler of the team. This crawler, based on Chrome Devtools Protocol, was used in top contributions in the field [Link]. I implemented the gathering of the WebSocket connections and downloading WebAssembly files. Apart from this, I implemented an analyzer of the results of crawls. **TL;DR:** I developed various techniques to define if a website is malicious (reputation scanners, websockets communication, VirusTotal API, security headers scanner among others).[Spanish]. Most of the techniques were focused in detecting *cryptojacking* activity. Finally, I launched the crawl and analyzer in different sets of websites.
- Supervised by Igor Santos-Grueiro.

Education

University of Deusto **PhD** **2022 – 2025?**

- (Provisional) Title of the thesis: *‘Towards A Trade-off of Web Usability and Privacy’*.
- Topic: Web Security & Privacy.
- Basque Government PreDoctoral Scholarship.
- Supervisors: Igor Santos-Grueiro & Pablo García-Bringas.

University of Leon **Master of Research in Cybersecurity** **2020 – 2022**

- Average grade: 8.54
- Distinction in two courses (Honors).

University of Deusto **Computer Engineering Degree** **2016 – 2020**

- Average grade: 8.15
- Distinction in Cloud Computing (Honors).

Publications

- **[Under review]** Markel Baskaran-Gogenola, Alberto Fernández-de-Retana, Pablo G. Bringas, Urko Zurutuza, Iñaki Garitano and Igor Santos-Grueiro. *“Undisclosed due to ethics and anonymous reviewing concerns”*.
- Alberto Fernández-de-Retana and Igor Santos-Grueiro. *Keep your Identity Small: Privacy-preserving Client-side Fingerprinting*. **Arxiv** 2023. [pdf].
- Alberto Fernández-de-Retana, Alberto Miranda-García, Ángel Manuel Guerrero, Camino Fernández-Llamas. *“Attacks Detection on Sampled Netflow Traffic Through Image Analysis with Convolutional Neural Networks (CNN)”*. **CISIS** 2021. [pdf].

Additional Experience

- I found a **XSS in the webpage of a public institution** in the Basque Country (*euskadi.eus*) where citizen personal information is stored (e.g., education titles, scholarship processes...). Reported and fixed. 2023.
- **Junior Penetration Tester certification (eJPT) 2021.**
- **Spanish Society Of Academic Excellence.** I was selected on the National Ranking of Informatics Engineering as one of the best and brightest graduates in the country.
- **Talentia Program.** Selected to participate in the Talentia program during my bachelor's studies, which focuses on developing students' transversal skills and connecting them with companies and industries in the Basque Country.
- **National Cyberleague.** Our team achieved the 9th position in the national competition of 2022, in which more than 1000 teams participated.
- **Spanish National Team CTF Quals for the European CyberSecurity Challenge (ECSC).** I achieved the 10th position in year 2023. I was in the preselection for the team.

About me

- Enjoy participating in CTFs as part of the ISwearIGoogleIt spanish team. Some workmates and I attempted to form a competitive CTF team at IMDEA by holding periodic meetings to solve challenges ([link](#)).
- I write on my personal blog about CTF writeups and other topics of interest on an occasional basis. I also maintain a web-research webpage.
- Football/Gym/Sport.
- Cook [PoW] and coffee addict.