Position: **Researcher Emerging Technologies, Europol Innovation Lab**

<https://www.europol.europa.eu/careers-procurement/open-vacancies/vacancy/570>

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Deadline:20 Apr 2022, 23:59

SKILLS & COMPETENCIES - Please describe how your skills and competencies are related to the position you are applying for and how you obtained them. You are advised to type your response in MS Word and then copy and paste it below: Required

The description of this position/post is composed of three main sections: (a) the “purpose of the post”, (b) the “function and duties”, and (c) the “requirements.” I’ve read everything carefully, and I’ve concluded that the skills and competencies underlined in those sections fit perfectly with my personal experience and interest. I have mainly four experiences that together cover most of those skills: (1) I’ve acquired the doctor degree in computer science, in cyber security, (2) I’m an assistant professor in computer science, in cyber security, (3) I’m a cloud Security lead, and (3) I’ve performed dozens of consultancy/advisory assignments with law enforcement bodies and public institutions.

Examples of institutions that I’ve performed a consultancy/advisory work are: the Dutch High Tech Crime police, the Danish High Tech Crime Police, the Japanese Ministry of International Affairs and Communications, the Dutch Ministry of the Interior and Kingdom Relations, the Dutch Ministry of Security and Justice, the British National Crime Agency (NCA), and the American Federal Bureau of Investigation (FBI). These opportunities involved different legal frameworks to process data. In addition to that, all these opportunities were directly related to my academic research on how to investigate of a type of cyber security attack, called Distributed Denial of Service (DDoS) attacks.

In 2017 I got a PhD degree, meaning that I’m able to address difficult problems in a scientific way. Any research starts with a deep understanding of the state-of-the-art related to the investigated topic (risks, threats and opportunities) followed by systematic tests. So, I’m pretty capable of doing these. In the same year, 2017, I became an assistant professor at the University of Twente (in the computer science department, cyber security). It means that besides doing research, I’m able to plan and organize a research agenda and teach on cyber security topics. The visibility of my work, my communication skills (written and spoken), and the practical academic findings gave me many great opportunities.

Related to my spoken communication skill, besides giving lectures since 2012 (in Brazil and the Netherlands), I gave public speaking training to the Dutch institution of science and research (NWO), I got an award as one of the best teachers of Computer Science of the University of Twente and, in 2018, I have spoken the outcome of my research to renown and general audiences worldwide, and I got a national competition as “the best science communicator of the Netherlands” (FameLab).

On my ability to collect, handle and analyse (large) amounts of data, I must start by saying that I’m a data-driven person. Most of my questions (personal and professional) are addressed with data analysis, from how to buy a car to how to investigate cyber attack data, from how to improve while running marathons to what is offered on the Dark Web. I love to work with data, and big data (terabytes and even petabytes of data). Everything that I do, I try to make it public and reproducible at github.com/jjsantanna. This highlights that besides being able to analyze large volumes of data I care about making things reproducible to the security community.

Finally, regarding the “two key emerging technologies” that I’m supposed to be experienced in and knowledgeable about, I would highlight my interest for artificial intelligence & machine learning and distributed ledger technologies (ex. blockchain). I’ve given lectures on these topics at the University level. Here I would like to emphasize that by achieving a PhD in computer science, I guarantee that I’m able to perform excellent analytical and critical thinking to evaluate and become a specialist in any emerging technology required for this post.

REASON(S) FOR APPLYING FOR THIS POST - Please explain briefly your reason(s) for applying for this post, including any relevant details that you wish to be taken into consideration which are not included elsewhere. You are advised to type your response in MS Word and then copy and paste it below: Required

I would like to share three stories that explain three reasons why I’m applying for this post. The first story is about when I gave a talk at the Dutch High Tech Crime police. I love to do cyber security research and I’m constantly paying attention to do not be only the theoretical side of it but make things that can be used. During my PhD, I decide to make my research practical and reproducible. All the analysis that I’ve done, I’ve publicly published on my Github. One day, while giving a talk at the Dutch High Tech Crime police unit they told me that they were using many of the source codes and the academic papers that I’ve written. Because of that, I’ve had the chance to participate in take-down operations and interact with other law enforcement agencies (ex. FBI and NCA). I realized that this is exactly what I would like to do: understand the technology and make things practical to improve cyber security. This is my first reason for applying to this post, I believe I can keep understanding technologies facilitating the use of it to improve our society.

My second story is about winning the title of “the best science communicator in the Netherlands” (Famelab 2018). I love to explain complicated scientific matters in a way that people, like my wife and my mother, can understand. When I join this regional/national/international Famelab competition, I competed with hundreds of top researchers in the Netherlands, people investigating the cure of cancer, people investigating the human genome, and other super exciting impactful topics. I was the only one talking about a problem that we/humans created: cyber attacks and cyber security. I only won the competition because I’m very passionate about the topic and I understand how to communicate with a different audience. This is my second reason for applying to this post, I believe this post requires not only people that can understand technology but are driven to communicate a focus on the intended audience.

My third and last story is about when I gave a presentation at Europol (the Hague, the Netherlands), on the 1st of August 2018. Because of my research and my engagement with victims and investigators of DDoS attacks, I was invited to give a talk on “how to address DDoS attacks”. There was a room full of CEOs, ISAC leaders, law enforcement people, me and my supervisor from the academia. I was the last one to talk. Before I started, the chair of the session told me that “they were all there just to see me talking about how to solve that problem.” I knew the answer! That day, I had the feeling that I was at the top of the world. The research that I’ve performed during that period gave light to several initiatives including the Dutch National Anti-DDoS coalition and the DDoS Clearinghouse. I have the chance to talk for two consecutive years at the main stage of the ONE conference (one of the biggest security conferences in the Netherlands). These events highlight my third reason: to create an impact with things that matter. I believe that working at the Europol innovation lab is the perfect place to build solutions and provide guidance for the future of our society.

One final but very important remark is that, at the moment that I’m writing this application, I’m not “a national of one of the Member States of the European Union”, yet. I live in the Netherlands for 9 years, I have a Dutch wife and two lovely kids born in the Netherlands. My process of becoming a Dutch citizen started in 2021, and it should be concluded very soon (perhaps at the moment you read this application). This post position is so exciting, it fits my experiences/skills, and it is a non-restrictive post. I couldn’t lose the opportunity to apply for it.

I'm proficient in: bash script, python and python libraries for data analysis (pandas, numpy, scipy, matplotlib, scikit-learn, tensorflow, keras, plotly, nltk, pytorch, and others), scala, SQL, KQL, and pyspark. \*Anything can be learned at the basic or intermediate level in a couple of hours or days.