

Personal Information

Home Address	Antreas Dionysiou Marinou Geroulanou 180, K.Polemidia, Limassol, Cyprus
Telephone Numbers	+357 25397915, +357 99041655
Nationality	Cypriot
Birth date	25 July 1994
Email	dionysiouantreas@gmail.com
Marital Status	Single
Languages	Greek, English, Italian.
Moto	We must not dream about success, we just have to work hard for it.

Education

January 2020 – Present

Doctor of Philosophy (PhD) in Computer Science. Specialization in Information Security & Machine Learning.

September 2018 – December 2019

Master of Science – M.Sc. in Computer Science with specialization in Intelligent Systems, University of Cyprus, Cyprus.

Graduated with First Class Honors (Excellent/Άριστα) and GPA of 9/10.

Awards of academic excellence for the master student with the highest academic performance of the University of Cyprus, the Faculty of Pure and Applied Sciences and the Department of Computer Science.

Thesis: Assessing the impact of deep learning on internet services' security mechanisms.

September 2014 – May 2018

Bachelor of Science – B.Sc. Computer Science, University of Cyprus, Cyprus.

Graduated with First Class Honors (Excellent/Άριστα) and GPA of 9.05/10.

Thesis: Protein Secondary Structure Prediction using Convolutional Neural Networks in Combination with Gabor Filters and Support Vector Machines.

Award of academic excellence from Computer Science Department of University of Cyprus.

Award of academic excellence in artificial intelligence, artificial neural networks and systems security from iSignThis Ltd.

Award of academic excellence from JCC.

September 2010 – June 2014

CISCO CCNA Certified.

Four Congratulations letters from CISCO (John T.Chambers Chairman and Chief Executive Officer) for completing the four modules (one per module) of CCNA with excellent grades.

September 2009 – June 2012

High School Apolytirion from Kato Polemidia Lyceum, Limassol, Cyprus.

Grade: 19.66/20

September 2011 - June 2012

Cambridge GCE A Level Computing

September 2010 - June 2011

Cambridge GCE AS Level Computing

September 2008 – June 2010

September 2010 – June 2011

Cambridge IGCSE English as a Second Language

September 2007 – June 2010

ECDL (European Computer Driving License) Certified from Cyprus Computer Society CCS. Congratulation Letter for gaining the highest grade nationwide.

Scientific Publications and Conferences

Dionysiou, A., Vassiliades, V., & Athanasopoulos, E. (2023). Exploring Model Inversion Attacks in the Black-box Setting. In Proceedings of the 23rd Privacy Enhancing Technologies Symposium (PETS). Lausanne, Switzerland.

Dionysiou, A., & Athanasopoulos, E. (2022). Lethe: Practical Data Breach Detection with Zero Persistent Secret State. In Proceedings of the 7th IEEE European Symposium on Security and Privacy (EuroS&P). Genoa, Italy.

Dionysiou, A., & Athanasopoulos, E. (2021). Unicode Evil: Evading NLP systems Using Visual Similarities of Text Characters. In Proceedings of the 14th ACM Workshop on Artificial Intelligence and Security (AISEC). Virtual.

Dionysiou, A., Vassiliades, V., & Athanasopoulos, E. (2021). HoneyGen: Generating Honeywords Using Representation Learning. In Proceedings of the 16th ACM Asia Conference on Computer and Communications Security (AsiaCCS). Hong Kong, China (virtual).

Dionysiou, A., & Athanasopoulos, E. (2020). SoK: Machine vs. Machine—A Systematic Classification of Automated Machine Learning-Based CAPTCHA Solvers. *Computers & Security*, 101947.

Dionysiou, Antreas. Internet of Intelligent Things (IoIT): A Large-Scale Evaluation. LAP LAMBERT Academic Publishing, 2019.

Dionysiou, A., Papaevripides, M., Charalampous, A. (2019). Library Information Retrieval (IR) System of University of Cyprus (UCY). *International Journal of Computational Science, Information Technology and Control Engineering*. 6. 09-20. 10.5121/ijcsitce.2019.6102.

Dionysiou, A., Agathocleous, M., Christodoulou, C., Promponas, V. (2018). A Hybrid Machine Learning Algorithm for Complex Sequential Data Classification, Using a Novel Data Representation Method. *Proc. of the 11th Cyprus Workshop on Signal Processing and Informatics (CWSPI)*, Nicosia, Cyprus, July 2018, p.8.

Dionysiou A., Agathocleous M., Christodoulou C., Promponas V. (2018). Convolutional Neural Networks in Combination with Support Vector Machines for Complex Sequential Data Classification. In: Kůrková V., Manolopoulos Y., Hammer B., Iliadis L., Maglogiannis I. (eds) *Artificial Neural Networks and Machine Learning – ICANN 2018*. Lecture Notes in Computer Science, vol 11140, Part II, Springer, Cham, pp. 444-455

Refereeing for journals and conferences

Elsevier *Computers & Security*,
IEEE European Symposium on Security and Privacy (EuroS&P),
International Conference on Artificial Neural Networks (ICANN),
International Conference on Artificial Intelligence Applications and Innovations (IAII),
Computer Methods and Programs in Biomedicine,
International Conference on Engineering Applications of Neural Networks (EANN).

Experience

January 2021 – June 2021, January 2022 – June 2022

Teaching Assistant at Computer Science Department at University of Cyprus. Teaching the postgraduate course "CS667 Neuroinformatics".

1 March 2020 – October 2020

EIT Climate-KIC Accelerator: Stage 2.

After winning the ClimateLaunchpad national final we got the tickets to enter the stage 2 of EIT Climate-KIC Accelerator. This stage includes several tasks, such as attracting potential customers, develop a prototype for our solution, and deliver the first operational results for our product. We have secured a €20.000 budget for staffing, travel/ subsistence, and consumables/services costs.

1 June – 12 September 2019

Ag Catalytic Solutions (Ballast water treatment system).

Graduated from ClimateLaunchpad Climate-KIC Regional Innovation Scheme Accelerator Programme in Cyprus (2019). EIT Climate-KIC Accelerator is Europe's largest cleantech accelerator for early stage startups which is focused upon getting them ready for their first customers, helping them fine tune and scale their business and be ready for investors. We won the **1st prize** at the national final and took the tickets to the global final in Amsterdam.

3 September 2018 - Present

Special Scientist at Security Research Group (SREC) at University of Cyprus. A major part of this position was to conduct fundamental research and development for the PERSONAS project (<https://personas-project.eu/>). PERSONAS, is a system-level framework that leverages virtualization for offering additional security to the end-user. PERSONAS provide a device independent, user-centric and self-adaptive security system, able to cope with the concept of seamless working experience on different devices, in which a user may start a session on a device and location and follow up the process on different devices and locations, without corporate or personal digital asset loss.

25 April 2018 – July 2018

CEO (Chief Executive Officer), Co-Founder at Ecofy Ltd. Ecofy is a startup company that revolutionized the recycling process through crowdsourcing and gamification. We have created a smart recycling platform for promoting recycling by giving people incentives. People who recycle can earn different rewards on products and services. I have been personally involved in all cycles of software development including problem definition and problem analysis, needs and requirements analysis, software development (back-end and front-end project development using MySQL for database, PHP for API and Ionic framework (Typescript, CSS and HTML) for the smartphone application), testing and debugging and finally maintenance.

16 April 2018 – June 2018

Participating Startup Team at IDEA startup incubator – accelerator: Ecofy Ltd. Business Courses, IDEA Accelerator training, which is an incubator program with entrepreneurial activities, business and marketing courses for startup companies.

20 January 2018 – 26 January 2018

Participated in the **King Abdullah University of Science and Technology (KAUST)** Winter Enrichment Program (WEP) Poster Competition. My personal research submission, on protein secondary structure prediction using artificial neural networks and Gabor filters, was chosen out of a very competitive pool of students from around the world. Visited KAUST university in Jeddah, Saudi Arabia, and participated in the final contest for selecting the most innovate and applicable idea to be funded by KAUST university.

3 July 2017 – 4 August 2017

Summer intern at Cyber Security/Risk department of **Deloitte Ltd Limassol**. The internship was about expanding as well as refactoring the warberry tool. **WarBerryPi** was built to be used as a hardware implant during red teaming scenarios where we want to obtain as much information as possible in a short period of time with being as stealth as possible. Just find a network port and plug it in. The scripts have been designed in a way that the approach is targeted to avoid noise in the network that could lead to detection and to be as efficient as possible. The WarBerry script is a collection of scanning tools put together to provide that functionality. The internship was about expanding the current free and paid version of warberry tool. Paid version includes hacking tools and scripts for attacking vulnerable network spots once they have been detected. Encryption of data and results was also developed. Warberry is a network scanning/hacking tool for cyber security purposes.

September 2015 – Present

Researcher at the Computational Intelligence and Neuroscience (CIN) Research Lab at University of Cyprus at Computer Science Department.

10 April 2016

Participated with QuadCode team in the First Game Exhibition in Cyprus, hosted by

Microsoft Innovation Centre in European University of Cyprus. The game that was developed and presented was Bomb the Bombs.

7 September 2014 - Present

Participated in Google Hash Code, Hackathon and many other computer science and programmers competitions.

2 January 2016

Co-founder of QuadCode startup company. A mobile application developing company. First project of the QuadCode was Bomb the Bombs game, available on the android play store, with more than 500 downloads with no marketing campaigns.

25 July 2012

Founder of Diosoft Computing Systems. The company provides services in the field of information technology, communications, as well as repair solutions both for hardware and software.

June 2012

Award of Excellence by CYTA for gaining the highest score in Selected Subject Computer Science.

June 2012

Award of Excellence by P.O.P for gaining the highest general score in Lyceum Apolytiron nationwide.

21 May 2012

Award for examined and successfully passed the module Pascal Programming, from Cyprus Computer Society CCS.

16 April 2011

Attended 6th Nationwide Technology Contest of University of Cyprus. Award Diploma for Most Innovative Design and Clever Programming.

29 June – 31 June 2009

Attendance Diploma from Research team of Learning in Physics and Environmental Sciences of University of Cyprus, about research on MATERIALS SCIENCE, CoREFLECT and Science created by you (SCY).

Personal Skills

Good Communication skills, Gentle, Adaptable, Alert, Ambitious, Businesslike, Careful, Confident as well as Perfectionist.

Education Projects

M.Sc. Thesis: Assessing the impact of deep learning on internet services' security mechanisms. The recent advances in Machine Learning (ML) and Artificial Intelligence (AI) make the efficacy of CAPTCHAs questionable. Furthermore, the operation of the most popular DL-based NLP systems is prone to adversarial text (i.e., malicious crafted text). In this thesis: (a) we conduct a systematic analysis and classification of the state-of-the-art ML-based techniques for text-based CAPTCHA breaking, examining and reporting the current state and robustness of text-based CAPTCHAs utilized by modern Internet applications, and (b) we assess the security of the most popular DL-based NLP machines for sentiment analysis and toxic content detection by performing real-world attacks and poisoning in this way the final classification outcome. Our study on (a), suggests that ML can be very effective in increasing: accuracy, speed, and abstraction in CAPTCHA solving. Especially, as far as the abstraction of solution is concerned, ML-based techniques are easier to be applied in different classes of text-based CAPTCHA schemes. To assess the importance of ML in breaking CAPTCHAs, we build our own ML-only classifiers. Surprisingly, an ML-only approach for solving CAPTCHAs is not sufficient. Overall, our study suggests that fundamentally different ways of conducting reverse Turing test, that will be painless for legitimate users (i.e., humans) but at the same time challenging for automated systems (i.e., software), should be considered for ensuring the healthy operation of current Internet services. Furthermore, our study on (b), suggests that DL-based NLP systems are prone to adversarial text demonstrating in this way the potential security vulnerabilities that may arise in such systems. We do this by proposing a framework, namely PoisonText, that is able to conduct successful and easy to implement attacks, using the adversarial text produced by perturbing the legitimate text, preserving

at the same time the text's original semantics. Moreover, we demonstrate that our attacks are highly effective in terms of original text's semantics and human readability, by contacting a large-scale user study.

B.Sc. Thesis: Protein Secondary Structure Prediction (PSSP) using Convolutional Neural Networks (CNNs) in combination with Gabor filters and Support Vector Machines (SVMs). This research is about the implementation and combination of Machine Learning algorithms as well as Artificial Neural Networks (ANNs) for solving the PSSP problem. More specifically this research is about implementing and deploying a convolutional neural network in combination with Gabor filters and support vector machines, for predicting a protein's secondary structure so to be in position to study the protein's tertiary structure and thus produce different kind of enzymes, medicines and drugs for different kind of diseases like cancer, Huntington, Parkinson etc. This methodology achieved one of the highest prediction accuracy scores (80.4%) on the PSSP problem at that time (May 2018).

GCE A LEVEL Computing Project. I had to choose a Company that wants to implement a computer program for resolving main problems using computer systems and improve company performance. My job: Choose the Company, Observe information using questionnaires, interviews and spending time along employees in the company. Make a Project showing the problems of Company, declaring the purpose and the importance of making a new computerized system, explaining your goals, show detailed explanation of each command in your new computerized system. Implement the new computerized system with databases and GUI (Graphical User Interface). Evaluate the new system using interviews questionnaires and etc. (400 Pages Project and a New Computerized System created).

Other: Chess game application with graphics was the final project of 1st semester in Computer Science Department of University of Cyprus. Atari simulator for playing games with graphics was the final project of 2nd semester in Computer Science Department of University of Cyprus. Different programs about biological information processing have been developed by me at 1st and 2nd semester in Computer Science Department of University of Cyprus. Different games, image processing applications and compressing programs have been developed by me at 1st and 2nd semester in Computer Science Department of University of Cyprus. Neural Networks for recognizing human written letters, prediction of electricity consumption per country, prediction for stock prices on stock market etc. Compiler for recognizing, error reporting and compiling 'C'-programming language.

Interests

I am interested in machine learning, deep learning, artificial intelligence, neuroscience, data science and cyber/information security. Also, I am interested in building custom personal computers with different kind of hardware and fixing different hardware/software problems on laptops/pcs/servers as well as mobile phones. Furthermore, I enjoy playing my guitar, singing, dancing as well as watching movies in my free time. Moreover, I have a deep love for sports cars. My goal is to gain experience and learn from every part of life.