

## ANGELOS STAVROU - *Curriculum Vitae*

### POSITIONS HELD

- **August 2020 – Present**  
Professor, Innovation Campus & Bradley Department of Electrical and Computer Engineering, Virginia Tech, Arlington, VA
- **August 2017 – August 2020**  
Professor, Computer Science Department, George Mason University, Fairfax, VA
- **April 2014 – August 2020**  
Director, Center for Assurance Research and Engineering (CARE), George Mason University, Fairfax, VA
- **May 2012 – August 2017**  
Associate Professor, Computer Science Department, George Mason University, Fairfax, VA
- **March 2014 – May 2017**  
Academic Director, M.S. in Management of Secure Information Systems Program, School of Management, George Mason University, Fairfax, VA
- **May 2013 – August 2015**  
Academic Director, M.S. in Information Security and Assurance, Computer Science Department, George Mason University, Fairfax, VA
- **September 2011 – August 2020**  
Associate Researcher, National Institute of Standards and Technology (NIST), Computer Security Division, Gaithersburg, MD
- **January 2012 – August 2013**  
Associate Director, Center for Secure Information Systems, George Mason University, Fairfax, VA
- **August 2007 – May 2012**  
Assistant Professor, Computer Science Department, George Mason University, Fairfax, VA
- **May 2006 – August 2006**  
Research Intern, Microsoft Research, Cambridge, UK
- **August 2004 – December 2004**  
Software Engineer Intern, Google Inc., Mountain view, CA
- **September 2001 – August 2007**  
Research Assistant, Computer Science Department, Columbia University, New York, NY

### EDUCATION

- **Columbia University, Fu Foundation School of Engineering & Applied Science, New York, NY.**  
Ph.D. in Computer Science (**with Distinction**) (**August 2007**)  
Thesis: "An Overlay Architecture for End-to-End Service Availability".  
Advisor: Angelos D. Keromytis.
- **Columbia University, Fu Foundation School of Engineering & Applied Science, New York, NY.**  
M.Phil. Degree in Computer Science (**January 2007**)  
M.Sc. Degree in Electrical Engineering with concentration in Multimedia Networking (Peer to Peer Networks). (December 2002).
- **National University of Athens, Athens Greece /Carleton University ON, Canada.**  
M.Sc. Degree in Algorithms, Computability and Logic. (**June 2001**)

Master's Thesis: "A new distributed algorithm for routing in satellite constellation networks"  
Advisor: Prof. E. Kranakis.

- **University of Patras, Electrical Engineering Department, Patras Greece.**  
Certificate of Engineering for the completion of the last two years of coursework in Electrical Engineering (**February 1999**).
- **University of Patras, Physics Department, Patras, Greece.**  
B.Sc (Honors) in Physics, (**July 1997**) Thesis: "Stream Ciphers theory and practical application".

## Publications

### Issued Patents

1. [Systems and methods for analyzing software](#)  
Ryan Johnson, Nikolaos Kiourtis, [Angelos Stavrou](#)  
U.S. Patent Number 10,387,627. Issued on August 20<sup>th</sup>, 2019.
2. [Active Authentication of Users](#)  
[Angelos Stavrou](#), Rahul Murmuria, Ryan Johnson, Daniel Barbara  
U.S. Patent Number 10,289,819. Issued on May 14<sup>th</sup>, 2019.
3. [Methods and systems for increased debugging transparency](#)  
Fengwei Zhang, Kevin Leach, [Angelos Stavrou](#), Haining Wang  
U.S. Patent Number 10,127,137. Issued on November 13<sup>th</sup>, 2018.
4. **Methods and Apparatus for Application Isolation**  
Anup Ghosh, Yih Huang, Jiang Wang, [Angelos Stavrou](#)  
U.S. Patent Number 9,602,524. Issued on March 21<sup>st</sup>, 2017.
5. **Malware Detector**  
[Angelos Stavrou](#), Sushil Jajodia, Anup Ghosh, Rhandi Martin, Charalampos Andrianakis  
U.S. Patent Number 9,531,747. Issued on December 27<sup>th</sup>, 2016.
6. **Hardware-assisted Integrity Monitor**  
Jiang Wang, Anup Ghosh, Kun Sun, [Angelos Stavrou](#)  
U.S. Patent Number 9,270,697. Issued on February 23<sup>rd</sup>, 2016.
7. **Systems and Methods for Inhibiting Attacks with a Network**  
[Angelos Stavrou](#), Angelos D. Keromytis  
U.S. Patent Number 9,344,418. Issued on May 17<sup>th</sup>, 2016.
8. **Methods and Apparatus for Application Isolation**  
Anup Ghosh, Yih Huang, Jiang Wang, [Angelos Stavrou](#)  
U.S. Patent Number 9,098,698. Issued on August 4<sup>th</sup>, 2015.
9. **Adaptive feedback loop based on a sensor for streaming static and interactive media content to animals**  
[Angelos Stavrou](#), Margaret Lee Perry-Flippin  
U.S. Patent Number 9,043,818. Issued on May 26<sup>th</sup>, 2015.

10. **Malware Detector**  
[Angelos Stavrou](#), Sushil Jajodia, Anup Ghosh, Rhandi Martin, Charalampos Andrianakis  
U.S. Patent Number 8,935,773. Issued on January 13<sup>th</sup>, 2015.
11. **Systems, Methods, and Media for Recovering an Application from a Fault or Attack**  
Michael E. Locasto, Angelos D. Keromytis, [Angelos Stavrou](#), Gabriela F. Ciocarlie  
U.S. Patent Number 8,924,782. Issued on December 30<sup>th</sup>, 2014.
12. **Hardware-assisted Integrity Monitor**  
Jiang Wang, [Angelos Stavrou](#), Anup Ghosh, Kun Sun  
U.S. Patent Number 8,819,225. Issued on August 26<sup>th</sup>, 2014.
13. **Website Matching based on Network Traffic**  
[Angelos Stavrou](#), Mohammed A. Alhussein, Brian Sanders  
U.S. Patent Number 8,726,005. Issued on May 13<sup>th</sup>, 2014.
14. **Systems and Methods for Inhibiting Attacks with a Network**  
[Angelos Stavrou](#), Angelos D. Keromytis.  
U.S. Patent Number 8,631,484. Issued on January 14<sup>th</sup>, 2014.
15. **Methods, Media and Systems for Responding to a Denial of Service Attack**  
[Angelos Stavrou](#), Angelos D. Keromytis, Jason Nieh, Vishal Misra, and Daniel Rubenstein.  
U.S. Patent Number 8,549,646. Issued on October 1<sup>st</sup>, 2013.
16. **Systems, Methods, and Media for Generating Sanitized Data, Sanitizing Anomaly Detection Models, and/or Generating Sanitized Anomaly Detection Models**  
Gabriela Cretu, [Angelos Stavrou](#), Salvatore J. Stolfo, Angelos D. Keromytis, Michael E. Locasto.  
U.S. Patent Number 8,407,160. Issued on March 26<sup>th</sup>, 2013.
17. **Systems and Methods for Computing Data Transmission Characteristics of a Network Path Based on Single-ended Measurements**  
Angelos D. Keromytis, Sambuddho Chakravarty, and [Angelos Stavrou](#).  
U.S. Patent Number 8,228,815. Issued on July 24<sup>th</sup>, 2012.
18. **Methods, Systems and Media for Software Self-Healing**  
Michael E. Locasto, Angelos D. Keromytis, Salvatore J. Stolfo, [Angelos Stavrou](#), Gabriela Cretu, Stylianos Sidiroglou, Jason Nieh, and Oren Laadan.  
U.S. Patent Number 7,962,798. Issued on June 14<sup>th</sup>, 2011.
19. **Systems and Methods for Computing Data Transmission Characteristics of a Network Path Based on Single-ended Measurements**  
Angelos D. Keromytis, Sambuddho Chakravarty, and [Angelos Stavrou](#). U.S. Patent Number 7,660,261. Issued on February 9<sup>th</sup>, 2010.

## **Journal Publications**

1. [Revisiting the Spaceborne Illuminators of Opportunity for Airborne Object Tracking](#). [PDF]  
John Robie, Alireza Famili, [Angelos Stavrou](#). In IEEE Computer 56(1): 82-92 (2023)
2. [Understanding the Security Implication of Aborting Live Migration](#)  
X. Gao, J. Xiao, H. Wang and [Angelos Stavrou](#). [IEEE Trans. Cloud Comput. 10\(2\)](#): 1275-1286  
(Online: 2020, Published: 2022)
3. [21 Years of Distributed Denial-of-Service: A Call to Action – Part 2](#) [PDF]

- Eric Osterweil, Angelos Stavrou, and Lixia Zhang. In *Computer*, vol. 53, no. 8, pp. 94-99, Aug. 2020, doi: 10.1109/MC.2020.2993330.
4. [21 Years of Distributed Denial-of Service: Current State of Affairs - Part 1 \[PDF\]](#)  
Eric Osterweil, Angelos Stavrou, and Lixia Zhang. In *Computer*, vol. 53, no. 7, pp. 88-92, July 2020, doi: 10.1109/MC.2020.2983711.
  5. [Towards Transparent Debugging](#)  
Fengwei Zhang, Kevin Leach, [Angelos Stavrou](#), Haining Wang  
[IEEE Trans. Dependable Sec. Comput.](#) 15(2): 321-335 (IEEE TDSC 2018)
  6. [On Early Detection of Application-level Resource Exhaustion and Starvation](#)  
Mohamed Elsabagh, Daniel Barbará, Dan Fleck, [Angelos Stavrou](#).  
In the Elsevier [Journal of Systems and Software](#) 137: 430-447 (2018)
  7. [An Empirical Investigation of Ecommerce-Reputation-Escalation-as-a-Service](#)  
Haitao Xu, Daiping Liu, Haining Wang, [Angelos Stavrou](#).  
*ACM Transactions on the Web*, Volume 11, Number 2, May 2017 (pages 13:1-13:35)
  8. [DDoS in the IoT: Mirai and Other Botnets](#)  
Constantinos Kolias, Georgios Kambourakis, [Angelos Stavrou](#), Jeffrey M. Voas.  
*IEEE Computer* 50(7): 80-84 (2017)
  9. [Cybersecurity Leadership: Competencies, Governance, and Technologies for Industrial Control](#)  
Jean-Pierre Auffret, Jane L. Snowden, Angelos Stavrou, Jeffrey S. Katz, Diana Kelley, Rasheq S. Rahman, Frank Stein, Lisa Sokol, Peter Allor, Peng Warweg. *Systems. Journal of Interconnection Networks* 17(1): 1-20 (2017)
  10. [Verified Time](#)  
[Angelos Stavrou](#), Jeff Voas.  
[IEEE Computer](#), Volume: 50, [Issue: 3](#), March 2017
  11. [On the Move: Evading Distributed Denial-of-Service Attacks](#)  
[Angelos Stavrou](#), Daniel Fleck, Constantinos Kolias.  
[IEEE Computer](#) 49(3): 104-107 (2016)
  12. [Intrusion Detection in 802.11 Networks: Empirical Evaluation of Threats and a Public Dataset](#)  
Constantinos Kolias, Georgios Kambourakis, [Angelos Stavrou](#), Stefanos Gritzalis.  
*IEEE Communications Surveys and Tutorials* 18(1): 184-208 (2016)
  13. [Learning Internet-of-Things Security "Hands-On"](#)  
Constantinos Kolias, [Angelos Stavrou](#), Jeffrey M. Voas, Irena Bojanova, D. Richard Kuhn.  
*IEEE Security & Privacy* 14(1): 37-46 (2016)
  14. [Securely Making "Things" Right](#)  
Constantinos Kolias, [Angelos Stavrou](#), Jeffrey M. Voas.  
[IEEE Computer](#) 48(9): 84-88 *IEEE Magazine* (2015)
  15. [A Moving Target DDoS Defense Mechanism](#)  
Huangxin Wang, Quan Jia, Dan Fleck, Walter Powell, Fei Li, [Angelos Stavrou](#).  
In the Elsevier *Journal of Computer Communications*, 46: 10-21 (2014)
  16. [HyperCheck: A Hardware-Assisted Integrity Monitor](#)  
Fengwei Zhang, Jiang Wang, Kun Sun, and [Angelos Stavrou](#).  
In the proceedings of *IEEE Transactions on Dependable and Secure Computing* (TDSC), [11](#)(4): 332-344 (2014)

17. [Improving network response times using social information](#)  
Sharath Hiremagalore, Chen Liang, [Angelos Stavrou](#) and Huzefa Rangwala.  
Proceedings of Social Network Analysis and Mining, Springer  
[Social Network Analysis and Mining](#), Volume 3, pages 209-220 (2013)
18. [Providing Users' Anonymity in Mobile Hybrid Networks](#)  
Claudio Agostino Ardagna, Sushil Jajodia, Pierangela Samarati, Angelos Stavrou.  
ACM Transactions on Internet Technology, Volume 12, 3, Article 7, pages 1 - 33 (May 2013)
19. [Building Security into Off-the-Shelf Smartphones](#)  
[Angelos Stavrou](#), Jeffrey Voas, Tom Karygiannis, Steve Quirolgico.  
IEEE Computer, vol. 45, no. 2, pp. 82-84, Feb. 2012, doi:10.1109/MC.2012.44
20. [DoubleGuard: Detecting Intrusions In Multi-tier Web Applications](#)  
Meixing Le, [Angelos Stavrou](#), Brent ByungHoon Kang.  
In IEEE Journal on [Transactions on Dependable and Secure Computing](#) (TDSC) 2011,  
ISSN: 1545-5971 10 Nov. 2011. IEEE computer Society Digital Library. IEEE Computer Society.  
Acceptance Rate: 10-12% as reported by 2009 TDSC [editorial](#), ISI Impact Factor: [2.093 \(2010\)](#).
21. [The Ephemeral Legion: Producing an Expert Cyber-security Workforce from Thin Air](#)  
Michael E. Locasto, Anup Ghosh, Sushil Jajodia, and [Angelos Stavrou](#).  
In the [Communications of the ACM](#), Vol. 54, Issue 1, pp 129 - 131.  
Impact Factor: [2.362 \(2010\)](#). [[bib](#)]
22. [The Dynamic Community of Interest and its Realization in ZODIAC](#)  
Scott Alexander, Steve Bellovin, Yuu-Heng Cheng, Brian Coan, Andrei Ghetie,  
Vikram Kaul, Nicholas F. Maxemchuk, Henning Schulzrinne, Stephen Schwab, Bruce Siegell,  
[Angelos Stavrou](#), and Jonathan M. Smith.  
In IEEE Communications Magazine, October 2009, pp. 40-47. Impact Factor: [2.837](#)
23. [On the Infeasibility of Modeling Polymorphic Shellcode: Re-thinking the Role of Learning in Intrusion Detection Systems](#)  
Yingbo Song, Michael E. Locasto, [Angelos Stavrou](#), Angelos D. Keromytis, and Salvatore J. Stolfo.  
In the Proceedings of [Machine Learning Journal \(MLJ\)](#) p. 179-205. Accepted: 7 August 2009.  
Published online: 29 October 2009. Editors: Pavel Laskov and Richard Lippmann. ISI Impact Factor:  
[1.956 \(2010\)](#). [[bib](#)]
24. [WebSOS: An Overlay-based System For Protecting Web Servers From Denial of Service Attacks](#)  
[Angelos Stavrou](#), Debra L. Cook, William G. Morein, Angelos D. Keromytis, Vishal Misra, and Dan Rubenstein.  
In [Elsevier Journal of Computer Networks](#), special issue on Web and Network Security, vol. 48, no. 5,  
p. 781 - 807. August 2005 5-Year Impact Factor: [1.690](#). [[bib](#)]
25. [A Lightweight, Robust, P2P System to Handle Flash Crowds](#)  
[Angelos Stavrou](#), Dan Rubenstein, Sambit Sahu.  
In the Proceedings of [IEEE Journal on Selected Areas in Communications \(JSAC\)](#),  
special issue on Service Overlay Networks, Volume 22, Number 1, p. 6-17, January 2004. Impact  
Factor: [4.232 \(2010\)](#). [[bib](#)]

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