ANGELOS STAVROU - *Curriculum Vitae*

POSITIONS HELD

- **August 2020 – Present**
  Professor, Innovation Campus & Bradley Department of Electrical and Computer Engineering, Virginia Tech, Arlington, VA
- **November 2022 – Present**
  Founder & CEO, Impedyme Inc., Arlington, VA
- **March 2022 – Present**
  Founder & Chairman of the Board, Quokka Inc, Arlington, VA
- **March 2011 – Present**
  Founder & CEO, A2 Labs LLC (formerly Kryptowire LLC, 2011 - 2024), Arlington, VA
- **August 2021 – Present**
  Entrepreneurship Lead, Innovation Campus, 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
- **March 2014 – May 2017**
  Academic Director, M.S. in Management of Secure Information Systems Program, School of Management, George Mason University, Fairfax, VA
- **May 2012 – August 2017**
  Associate Professor, Computer Science Department, 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
- **January 2012 – August 2013**
  Associate Director, Center for Secure Information Systems, George Mason University, Fairfax, VA
- **September 2011 – August 2020**
  Associate Researcher, National Institute of Standards and Technology (NIST), Computer Security Division, Gaithersburg, MD
- **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

GoSecure, Inc.
Exhibit 2032
CrowdStrike v. GoSecure
IPR2025-00070

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 20th, 2019.

2. **Active Authentication of Users**
   Angelos Stavrou, Rahul Murmuria, Ryan Johnson, Daniel Barbara
   U.S. Patent Number 10,289,819. Issued on May 14th, 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 13th, 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 21st, 2017.

5. **Malware Detector**
   Angelos Stavrou, Sushil Jajodia, Anup Ghosh, Rhandi Martin, Charalampos Andrianakis
   U.S. Patent Number 9,531,747. Issued on December 27th, 2016.

6. **Hardware-assisted Integrity Monitor**

Jiang Wang, Anup Ghosh, Kun Sun, Angelos Stavrou
U.S. Patent Number 9,270,697. Issued on February 23rd, 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 17th, 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 4th, 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 26th, 2015.

10. **Malware Detector**
Angelos Stavrou, Sushil Jajodia, Anup Ghosh, Rhandi Martin, Charalampos Andrianakis
U.S. Patent Number 8,935,773. Issued on January 13th, 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 30th, 2014.

12. **Hardware-assisted Integrity Monitor**
Jiang Wang, Angelos Stavrou, Anup Ghosh, Kun Sun
U.S. Patent Number 8,819,225. Issued on August 26th, 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 13th, 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 14th, 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 1st, 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 26th, 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 24th, 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 14th, 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 9th, 2010.

Journal Publications

1. **Leveraging Isochrons of Nonlinear Oscillators for High-Precision Localization**
Alireza Famili, Georgia Himona, Yannis Kominis, Angelos Stavrou, Vassilios Kovanis.
IEEE Internet Things Journal 12(8): 9833-9847 (2025)

2. **Harnessing Meta-Reinforcement Learning for Enhanced Tracking in Geofencing Systems**
Alireza Famili, Shihua Sun, Tolga O. Atalay, Angelos Stavrou.
IEEE Open Journal of Communications Society 6: 944-960 (2025)

3. **An OpenRAN Security Framework for Scalable Authentication, Authorization, and Discovery of xApps with Isolated Critical Services**
Tolga O. Atalay, Sudip Maitra, Dragoslav Stojadinovic, Angelos Stavrou, Haining Wang.
IEEE Transactions on Dependable and Secure Computing 22(3): 2873-2890 (2025)

4. **Harnessing Meta-Reinforcement Learning for Enhanced Tracking in Geofencing Systems**
A. Famili, S. Sun, T. Atalay and A. Stavrou.
In Proceedings of IEEE Open Journal of the Communications Society 2025,
doi: 10.1109/OJCOMS.2025.3531318.

5. **Leveraging Isochrons of Nonlinear Oscillators for High-Precision Localization**
A. Famili, G. Himona, Y. Kominis, A. Stavrou and V. Kovanis
In the 2024 IEEE Internet of Things Journal proceedings, doi: 10.1109/JIOT.2024.3508548.

6. **Isochrons in Injection Locked Photonic Oscillators: A New Frontier for High-Precision Localization**
A. Famili, G. Himona, Y. Kominis, A. Stavrou and V. Kovanis
In the IEEE Journal of Indoor and Seamless Positioning and Navigation, vol. 2, pp. 304-319, 2024,
doi: 10.1109/JISPIN.2024.3504396.

7. **All in one: Improving GPS accuracy and security via crowdsourcing**
Mahsa Foruhandeh, Hanchao Yang, Xiang Cheng, Angelos Stavrou, Haining Wang, Yaling Yang
In Elsevier Computer Networks, Volume 254, 2024, 110775, ISSN 1389-1286,
https://doi.org/10.1016/j.comnet.2024.110775.

8. **Securing Your Airspace: Detection of Drones Trespassing Protected Areas**
Famili A, Stavrou A, Wang H, Park JJ, Gerdes R.
In Sensors. 2024 Mar 22;24(7):2028. doi: 10.3390/s24072028. PMID: 38610239; PMCID: PMC11013887.

9. **OPTILOD: Optimal Beacon Placement for High-Accuracy Indoor Localization of Drones**
Famili, Alireza, Angelos Stavrou, Haining Wang, and Jung-Min (Jerry) Park.
In Sensors 24, no. 6: 1865. https://doi.org/10.3390/s24061865

10. **Revealing Protocol Architecture's Design Patterns in the Volumetric DDoS Defense Design Space**
Zhang, Zhiyi; Xiao, Guorui; Song, Sichen; Aygun, R. Can; Stavrou, Angelos; Zhang, Lixia; Osterweil, Eric.
In the proceedings of IEEE Communications Surveys and Tutorials (2024).

11. **A multiview clustering framework for detecting deceptive reviews**
Yubao Zhang, Haining Wang, Angelos Stavrou. In the proceedings of Journal of Computer Security, vol. 32, no. 1, pp. 31-52, 2024.

12. **OFDRA: Optimal Femtocell Deployment for Accurate Indoor Positioning of RIS-Mounted AVs**
A. Famili, T. O. Atalay, A. Stavrou, H. Wang and J. -M. Park. In the proceedings of IEEE Journal on Selected Areas in Communications, vol. 41, no. 12, pp. 3783-3798, Dec. 2023, doi:10.1109/JSAC.2023.3322821.

13. **iDROP: Robust Localization for Indoor Navigation of Drones With Optimized Beacon Placement**
A. Famili, A. Stavrou, H. Wang and J. -M. Park. In the proceedings of IEEE Internet of Things Journal, vol. 10, no. 16, pp. 14226-14238, 15 Aug.15, 2023, doi: 10.1109/JIOT.2023.3280084.

14. **Revisiting the Spaceborne Illuminators of Opportunity for Airborne Object Tracking.** **[PDF]**
John Robie, Alireza Famili, Angelos Stavrou. In the proceedings of IEEE Computer 56(1): 82-92 (2023)

15. **PILOT: High-Precision Indoor Localization for Autonomous Drones**
A. Famili, A. Stavrou, H. Wang and J. -M. Park. In the proceedings of IEEE Transactions on Vehicular Technology, vol. 72, no. 5, pp. 6445-6459, May 2023, doi: 10.1109/TVT.2022.3229628

16. **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)

17. **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.

18. **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.

19. **Towards Transparent Debugging**
Fengwei Zhang, Kevin Leach, Angelos Stavrou, Haining Wang
In the proeedings of IEEE Transactions of Dependable Secure Computing 15(2): 321-335 (IEEE TDSC 2018)

20. **On Early Detection of Application-level Resource Exhaustion and Starvation**
Mohamed Elsabagh, Daniel Barbará, Dan Fleck, Angelos Stavrou
In proceedings of the Elsevier Journal of Systems and Software 137: 430-447 (2018)

21. **An Empirical Investigation of Ecommerce-Reputation-Escalation-as-a-Service**
Haitao Xu, Daiping Liu, Haining Wang, Angelos Stavrou.
In the proceedings of ACM Transactions on the Web, Volume 11, Number 2, May 2017 (pages 13:1-13:35)

22. **DDoS in the IoT: Mirai and Other Botnets**
Constantinos Kolias, Georgios Kambourakis, Angelos Stavrou, Jeffrey M. Voas.
In the proceedings of IEEE Computer 50(7): 80-84 (2017)

23. **Cybersecurity Leadership: Competencies, Governance, and Technologies for Industrial Control**

Jean-Pierre Auffret, Jane L. Snowdon, 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)

24. **Verified Time**
Angelos Stavrou, Jeff Voas.
In the proceedings of IEEE Computer, Volume: 50, Issue: 3, March 2017

25. **On the Move: Evading Distributed Denial-of-Service Attacks**
Angelos Stavrou, Daniel Fleck, Constantinos Kolias.
In the proceedings of IEEE Computer 49(3): 104-107 (2016)

26. **Intrusion Detection in 802.11 Networks: Empirical Evaluation of Threats and a Public Dataset**
Constantinos Kolias, Georgios Kambourakis, Angelos Stavrou, Stefanos Gritzalis.
In the proceedings of IEEE Communications Surveys and Tutorials 18(1): 184-208 (2016)

27. **Learning Internet-of-Things Security "Hands-On"**
Constantinos Kolias, Angelos Stavrou, Jeffrey M. Voas, Irena Bojanova, D. Richard Kuhn.
In the proceedings of IEEE Security & Privacy 14(1): 37-46 (2016)

28. **Securely Making "Things" Right**
Constantinos Kolias, Angelos Stavrou, Jeffrey M. Voas.
In the proceedings of IEEE Computer 48(9): 84-88 IEEE Magazine (2015)

29. **A Moving Target DDoS Defense Mechanism**
Huangxin Wang, Quan Jia, Dan Fleck, Walter Powell, Fei Li, Angelos Stavrou.
In the proceedings of Elsevier Journal of Computer Communications, 46: 10-21 (2014)

30. **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)

31. **Improving network response times using social information**
Sharath Hiremagalore, Chen Liang, Angelos Stavrou and Huzefa Rangwala.
In the proceedings of Social Network Analysis and Mining, Springer
Social Network Analysis and Mining, Volume 3, pages 209-220 (2013)

32. **Providing Users' Anonymity in Mobile Hybrid Networks**
Claudio Agostino Ardagna, Sushil Jajodia, Pierangela Samarati, Angelos Stavrou.
In the proceedings of ACM Transactions on Internet Technology, Volume 12, 3, Article 7, pages 1 - 33 (May 2013)

33. **Building Security into Off-the-Shelf Smartphones**
Angelos Stavrou, Jeffrey Voas, Tom Karygiannis, Steve Quirolgico.
In the proceedings of IEEE Computer, vol. 45, no. 2, pp. 82-84, Feb. 2012, doi:10.1109/MC.2012.44

34. **DoubleGuard: Detecting Intrusions In Multi-tier Web Applications**
Meixing Le, Angelos Stavrou, Brent ByungHoon Kang.
In the proceedings of 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).

35. **The Ephemeral Legion: Producing an Expert Cyber-security Workforce from Thin Air**
Michael E. Locasto, Anup Ghosh, Sushil Jajodia, and Angelos Stavrou.
In the proceedings of Communications of the ACM, Vol. 54, Issue 1, pp 129 - 131.
Impact Factor: 2.362 (2010). [bib]

36. **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 the proceedings of IEEE Communications Magazine, October 2009, pp. 40-47. Impact Factor: 2.837

37. **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]

38. **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 the proceedings of 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]

39. **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]

Conference Publications

1. **5G-MAP: Demystifying the Performance Implications of Cloud-Based 5G Core Deployments**
Tolga Atalay, Dragoslav Stojadinovic, Alireza Famili, Angelos Stavrou, and Haining Wang
In Proceedings of the 31st Annual International Conference on Mobile Computing and Networking (ACM MOBICOM '25). Association for Computing Machinery, New York, NY, USA, 559–573. https://doi.org/10.1145/3680207.3723492 **(Best Community Paper Award) (**Acceptance rate: 13%)

2. **TACTIC: Tactical AR/VR Configurable Tracker Investigating Compactness Limits in the Metaverse.** Alireza Famili, Tolga Atalay, Angelos Stavrou
In Proceedings of the 2025 International Conference on Metaverse Computing, Networking and Applications (MetaCom), Seoul, Korea, Republic of, 2025, pp. 348-355, doi: 10.1109/MetaCom65502.2025.00060. **(Best Paper Award)** (Acceptance rate: n/a)

3. **Envisioning the Next-Generation Cellular Architecture With Named Data Networking**
Tolga O. Atalay, Angelos Stavrou, Lixia Zhang
In IEEE Computer 58(8): 20-29 (2025)

4. **Towards xApp Conflict Evaluation with Explainable Machine Learning and Causal Inference in O-RAN**
Pragya Sharma, Shihua Sun Shachi Deshpande, Angelos Stavrou, Haining Wang
In Proceedings of the 2025 IEEE Conference on Network Function Virtualization and Software Defined Networks, 10–12 November 2025, Athens, Greece. (Best Paper Award) (Acceptance rate: n/a)

5. **Taming the Silent Error: Strategic Femtocell Deployment for Reliable Medical Robot Navigation**
   Alireza Famili, Tolga Atalay, Angelos Stavrou
   In Proceedings of the 2025 IEEE International Mediterranean Conference on Communications and Networking (MeditCom), Nice, France, 2025, pp. 1-6, doi: 10.1109/MeditCom64437.2025.11104464.

6. **Revealing Protocol Architecture's Design Patterns in the Volumetric DDoS Defense Design Space**
   Zhiyi Zhang, Guorui Xiao, Sichen Song, R. Can Aygun, Angelos Stavrou, Lixia Zhang, Eric Osterweil. In IEEE Commun. Surv. Tutorials 27(1): 353-371 (2025)

7. **General and Agentic AI, and the Challenges of Xplainable Reliability**
   Angelos Stavrou, Jeffrey M. Voas
   IEEE Computer 58(6): 69-72 (2025)

8. **5G-STREAM: Service Mesh Tailored for Reliable, Efficient and Authorized Microservices in the Cloud**
   Tolga O. Atalay, Alireza Famili, Sudip Maitra, Dragoslav Stojadinovic, Angelos Stavrou, Haining Wang. In the proceedings of 55th Annual IEEE/IFIP International Conference on Dependable Systems and Networks, DSN 2025: 116-128

9. **Unlocking the Potential of IEEE 802.11az: A Deep Dive into Ranging Capabilities**
   Alireza Famili, Tolga O. Atalay, Angelos Stavrou.
   In the proceedings of International Conference on Computing, Networking and Communications, ICNC 2025, Honolulu, HI, USA, February 17-20, 2025, pp. 763-769

10. **Enhancing Secure Communication: Deep Q-Learning for Location-Based Authentication**
    Alireza Famili, Shihua Sun, Tolga O. Atalay, Angelos Stavrou.
    IEEE Network Operations and Management Symposium, Honolulu, HI, USA, May 12-16, 2025 NOMS 2025: 1-9

11. **Leveraging Isochrons of Nonlinear Oscillators for High-Precision Localization**
    Alireza Famili, Georgia Himona, Yannis Kominis, Angelos Stavrou, Vassilios Kovanis
    IEEE Internet Things Journal 12(8): 9833-9847 (2025)

12. **Stars and Towers on the Wheels: Global Perspective on Satellite Networks vs. Terrestrial 5G**
    Amirreza Ghafoori, Alireza Famili, Angelos Stavrou
    To appear in the IEEE Global Communications Conference, 8–12 December 2024 // Cape Town, South Africa (IEEE Globecom' 24).

13. **ViTGuard: Attention-aware Detection against Adversarial Examples for Vision Transformer**
    Shihua Sun, Kenechukwu Nwodo, Shridatt Sugrim, Angelos Stavrou, Haining Wang
    To appear in the proceedings of the Annual Computer Security Applications Conference (ACSAC) 2024 (ACSAC'24).

14. **Evaluating 5G Core Service Mesh Encapsulations in Cloud Deployments**
    Tolga O. Atalay, Alireza Famili, Angelos Stavrou
    In 2024 IEEE Conference on Network Function Virtualization and Software Defined Networks (NFV-SDN)

15. **Behind the Scenes of Successful Metaverse User Traversal**
    A. Famili, T. Atalay and A. Stavrou
    In 2024 2nd International Conference on Intelligent Metaverse Technologies & Applications (iMETA), Dubai, United Arab Emirates, 2024, pp. 168-175, doi: 10.1109/iMETA62882.2024.10808087.

16. **An Exploration of Fuzzing for Discovering Use-After-Free Vulnerabilities**

Z. Chen, J. Xiao, A. Stavrou and H. Wang.
In the proceedings of 2024 IEEE 35th International Symposium on Software Reliability Engineering Workshops (ISSREW), Tsukuba, Japan, 2024, pp. 19-24, doi: 10.1109/ISSREW63542.2024.00041.

17. **FedMADE: Robust Federated Learning for Intrusion Detection in IoT Networks Using a Dynamic Aggregation Method**
Sun, S., Sharma, P., Nwodo, K., Stavrou, A., Wang, H.
In: Mouha, N., Nikiforakis, N. (eds) Information Security. ISC 2024. Lecture Notes in Computer Science, vol 15258. Springer, Cham. https://doi.org/10.1007/978-3-031-75764-8_15

18. **GREEN: Precise Geolocation in Metaverse using Reinforcement Learning-Enabled Sensor Placement**
Alireza Famili; Tolga Atalay; Amin Tabrizian; Angelos Stavrou. In the proceedings of the 2024 IEEE International Conference on Metaverse Computing, Networking, and Applications (MetaCom), Hong Kong, China, 2024, pp. 231-238, doi: 10.1109/MetaCom62920.2024.00045

19. **RAPID: Reinforcement Learning-Aided Femtocell Placement for Indoor Drone Localization**
Alireza Famili, Amin Tabrizian, Tolga Atalay, Angelos Stavrou and Peng Wei
In the *33rd International Conference on Computer Communications and Networks (ICCCN) proceedings*, Kailua-Kona, HI, USA, 2024, pp. 1-9, doi: 10.1109/ICCCN61486.2024.10637529.

20. **Towards Shielding 5G Control Plane Functions**
S. Maitra, T. O. Atalay, A. Stavrou and H. Wang
In 2024 54th Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN), Brisbane, Australia, 2024, pp. 302-315, doi: 10.1109/DSN58291.2024.00039.

21. **Isochrons in Photonic Oscillators: A Paradigm Shift in Positioning**
A. Famili, G. Himona, Y. Kominis, A. Stavrou and V. Kovanis,
In 2024 IFIP Networking Conference (IFIP Networking), Thessaloniki, Greece, 2024, pp. 1-7, doi: 10.23919/IFIPNetworking62109.2024.10619066.

22. **CARTA: Coordinated Arrangement of Receivers for Target Acquisition**
A. Famili and A. Stavrou
In 2024 IFIP Networking Conference (IFIP Networking), Thessaloniki, Greece, 2024, pp. 323-331, doi: 10.23919/IFIPNetworking62109.2024.10619793.

23. **5G-WAVE: A Core Network Framework with Decentralized Authorization for Network Slices**
P. Sharma, T. Atalay, H. A. Gibbs, D. Stojadinovic, A. Stavrou and H. Wang
IEEE INFOCOM 2024 - IEEE Conference on Computer Communications, Vancouver, BC, Canada, 2024, pp. 2308-2317, doi: 10.1109/INFOCOM52122.2024.10621131.

24. **Mobile Devices' Low Charge, High CPU Load, Number of Sensors, and OS Features Delay Sensor Data Readings**
Boris Gafurov, Angelos Stavrou
In 2024 International Conference on Computer, Information and Telecommunication Systems (CITS), Girona, Spain, 2024, pp. 1-7, doi: 10.1109/CITS61189.2024.10608020.

25. **5GPS: 5G Femtocell Placement Strategies for Ultra-Precise Indoor Localization in the Metaverse**
Alireza Famili;Tolga O. Atalay;Angelos Stavrou
In 2024 International Conference on Computing, Networking and Communications (ICNC), Big Island, HI, USA, 2024, pp. 1132-1138, doi: 10.1109/ICNC59896.2024.10556043.

26. **Demystifying 5G Traffic Patterns with an Indoor RAN Measurement Campaign**
Atalay, Tolga O., Famili, Alireza, Stojadinovic, Dragoslav and Stavrou, Angelos.

In 2023 IEEE Global Communications Conference (GLOBECOM) pp. 1185-1190, ISBN: 979-8-3503-1090-0

27. **Wi-Six: Precise Positioning in the Metaverse via Optimal Wi-Fi Router Deployment in 6G** Networks. A. Famili, T. Atalay, A. Stavrou and H. Wang. (Best Paper Award) In 2023 IEEE International Conference on Metaverse Computing, Networking and Applications (MetaCom), Kyoto, Japan, 2023 pp. 17-24. doi: 10.1109/MetaCom57706.2023.00019

28. **2023. Dial "N" for NXDomain: The Scale, Origin, and Security Implications of DNS Queries to Non-Existent Domains.** Guannan Liu, Lin Jin, Shuai Hao, Yubao Zhang, Daiping Liu, Angelos Stavrou, and Haining Wang. In the proceedings of the 2023 ACM on Internet Measurement Conference (IMC '23). Association for Computing Machinery, New York, NY, USA, 198–212. https://doi.org/10.1145/3618257.3624805

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Haitao Xu, Zhao Li, Chen Chu, Yuanmi Chen, Yifan Yang, Haifeng Lu, Haining Wang, and Angelos Stavrou, In the Proceedings of the 23rd European Symposium on Research in Computer Security (*ESORICS'18*), Barcelona, Spain, Sep. 2018. (Acceptance Rate: 19.8%, 56/283).

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In the Proceedings of the IEEE Military Communications Conference (MILCOM 2017)
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56. **Practical and Accurate Runtime Application Protection against DoS Attacks**
Mohamed Elsabagh, Dan Fleck, Angelos Stavrou, Michael Kaplan, Thomas Bowen
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Xing Gao, Dachuan Liu, Daiping Liu, Haining Wang, Angelos Stavrou
In the proceedings of the the 37th IEEE International Conference on Distributed Computing Systems (ICDCS 2017), June 5-8, 2017, Atlanta, Georgia, USA.
(Acceptance Rate: 16.9%, 90/531)

58. **Detecting Passive Cheats in Online Games via Performance-Skillfulness Inconsistency**
Daiping Liu, Xing Gao, Mingwei Zhang, Haining Wang, Angelos Stavrou
In the proceedings of the 47th IEEE/IFIP International Conference on Dependable Systems and Networks (DSN 2017), June 26-29, 2017, Denver, Colorado, USA.

(Acceptance Rate: 22.3%, 49/220)

59. **Strict Virtual Call Integrity Checking for C++ Binaries** (**Distinguished paper award**)
Mohamed Elsabagh, Dan Fleck, Angelos Stavrou
In the Proceedings of the ACM Asia Conference on Computer and Communications Security (ASIACCS) 2017, April 2-6, 2017 Abu Dhabi, UAE (Acceptance Rate: 18.7%, 67/359)

60. **Why Software DoS is Hard to Fix: Denying Access in Embedded Android Platforms**
Ryan Johnson, Mohamed Elsabagh, and Angelos Stavrou
In the proceedings of the 14th International Conference on Applied Cryptography and Network Security (ACNS) 2016, June 19-22, 2016, London, UK (Acceptance Rate: 19.13%, 35/183).

61. **When a Tree Falls: Using Diversity in Ensemble Classifiers to Identify Evasion in Malware Detectors**
Charles Smutz and Angelos Stavrou
In the proceedings of the Network and Distributed System Security Symposium (NDSS) 2016, February 21-24, San Diego, California, USA (Acceptance Rate: 15.4%, 60/389).

62. **Targeted DoS on Android: How to Disable Android in 10 Seconds or Less**
Ryan Johnson, Mohamed Elsabagh, Angelos Stavrou, and Vincent Sritapan
In the proceedings of the 10th Malware Conference (MALCON) Oct. 2015, IEEE Computer Society ISBN: 978-1-5090-0317-4 pp: 136-143 Puerto Rico, USA.

63. **Preventing Exploits in Microsoft Office Documents through Content Randomization**
Charles Smutz and Angelos Stavrou
In the proceedings of the 18th International Symposium on Research in Attacks, Intrusions and Defenses (RAID), November 2015, Kyoto, Japan (Acceptance Rate: 23.5%, 28/119).

64. **Continuous Authentication on Mobile Devices Using Power Consumption, Touch Gestures and Physical Movement of Users**
Rahul Murmuria, Angelos Stavrou, Daniel Barbara, Dan Fleck
In the proceedings of the 18th International Symposium on Research in Attacks, Intrusions and Defenses (RAID), November 2015, Kyoto, Japan (Acceptance Rate: 23.5%, 28/119).

65. **Privacy Risk Assessment on Online Photos**
Haitao Xu, Haining Wang, Angelos Stavrou
In the proceedings of the 18th International Symposium on Research in Attacks, Intrusions and Defenses (RAID), November 2015, Kyoto, Japan (Acceptance Rate: 23.5%, 28/119).

66. **Radmin: Early Detection of Application-Level Resource Exhaustion and Starvation Attacks**
Mohamed Elsabagh, Daniel Barbara, Daniel Fleck, Angelos Stavrou
In the proceedings of the 18th International Symposium on Research in Attacks, Intrusions and Defenses (RAID), November 2015, Kyoto, Japan (Acceptance Rate: 23.5%, 28/119).

67. **On the DNS Deployment of Modern Web Services** **(Best paper nominee)**
Shuai Hao, Haining Wang, Angelos Stavrou, and Evgenia Smirni
In the proceeding of the 23rd IEEE International Conference on Network Protocols (ICNP) November 10-13 2015, San Francisco, CA, USA (Acceptance rate: 20%).

68. **Analysis of Content Copyright Infringement in Mobile Application Markets** **(Best paper award)**
Ryan Johnson, Nikolaos Kiourtis, Angelos Stavrou, and Vincent Sritapan
In the proceedings of APWG/IEEE eCrime Research Summit 2015, May 2015, Barcelona, Spain.

69. **Using Hardware Features for Increased Debugging Transparency**
Fengwei Zhang, Kevin Leach, Angelos Stavrou, Haining Wang, and Kun Sun
In the Proceedings of the 36th IEEE Symposium on Security and Privacy

(Oakland 2015), May 2015, San Jose, CA (Acceptance Rate: 13.5%, 55/407).

70. **Resurrecting the READ_LOGS Permission on Samsung Devices**
Ryan Johnson and Angelos Stavrou
In the briefings of Blackhat Asia 2015.

71. **E-commerce Reputation Manipulation: The Emergence of Reputation-Escalation-as-a-Service**
(Best paper nominee)
Haitao Xu, Daiping Liu, Haining Wang and Angelos Stavrou
In the Proceedings of 24th World Wide Web Conference (WWW 2015) (Acceptance Rate: 14.1%, 131/929).

72. **TrustLogin: Securing Password-Login on Commodity Operating Systems**
Fengwei Zhang, Kevin Leach, Haining Wang, and Angelos Stavrou
In the Proceedings of The 10th ACM Symposium on Information, Computer and Communications Security (AsiaCCS'15), Singapore, April 2015 (Acceptance Rate: 17.8%, 48/269).

73. **transAD: An Anomaly Detection Network Intrusion Sensor for the Web (short paper)**
Sharath Hiremagalore, Daniel Barbara, Dan Fleck, Walter Powell, and Angelos Stavrou
In the Proceedings of Information Security Conference (ISC 2014), Lecture Notes in Computer Science p 477-489, Hong Kong, Oct 2014. (Acceptance Rate: 17.8%, 48/269)

74. **A Framework to Secure Peripherals at Runtime**
Fengwei Zhang, Haining Wang, Kevin Leach, Angelos Stavrou
European Symposium on Research in Computer Security (ESORICS) p. 219-238 (2014)
(Acceptance Rate: 24.8%, 58/234)

75. **Click Fraud Detection on the Advertiser Side**
Haitao Xu, Daiping Liu, Aaron Koehl, Haining Wang, Angelos Stavrou
European Symposium on Research in Computer Security (ESORICS) p. 419-438 (2014)
(Acceptance Rate: 24.8%, 58/234)

76. **Activity Spoofing and Its Defense in Android Smartphones**
Brett Cooley, Haining Wang, and Angelos Stavrou
In the proceedings of the 12th International Conference on Applied Cryptography and Network Security (*ACNS 2014*) Lausanne, Switzerland. (Acceptance Rate: 22.5%, 33/147)

77. **Catch Me if You Can: A Cloud-Enabled DDoS Defense**
Quan Jia, Huangxin Wang, Dan Fleck, Fei Li, Angelos Stavrou, Walter A. Powell.
In the Proceedings of the 44th Annual IEEE/IFIP International Conference on Dependable Systems and Networks (IEEE DSN 2014), Atlanta, Georgia USA, June 23 - 26, 2014.

78. **Detecting Malicious Javascript in PDF through Document Instrumentation**
Daiping Liu, Haining Wang, and Angelos Stavrou.
In the Proceedings of the 44th Annual IEEE/IFIP International Conference on Dependable Systems and Networks (IEEE DSN 2014), Atlanta, Georgia USA, June 23 - 26, 2014.

79. **PyTrigger: A System to Trigger & Extract User-Activated Malware Behavior**
Dan Fleck, Arnur Tokhtabayev, Alex Alarif, Angelos Stavrou, and Tomas Nykodym.
In the proceedings of the 8th ARES Conference (ARES 2013),
University of Regensburg, Germany September 2nd - 6th, 2013.

80. **MOTAG: Moving Target Defense Against Internet Denial of Service Attacks**
Quan Jia, Kun Sun, Angelos Stavrou.

In the proceedings of the International Conference on Computer Communications and Networks ICCCN 2013 Nassau, Bahamas July 30 - August 2, 2013.

81. **Behavioral Analysis of Android Applications Using Automated Instrumentation**
Mohammad Karami, Mohamed Elsabagh, Parnian Najafiborazjani, and Angelos Stavrou.
In the Proceedings of the 7th International Conference on Software Security and Reliability (IEEE SERE 2013), 18-20 June 2013, Washington DC, USA. (Acceptance rate 30%)

82. **Forced-Path Execution for Android Applications on x86 Platforms**
Ryan Johnson, and Angelos Stavrou.
In the Proceedings of the 7th International Conference on Software Security and Reliability (IEEE SERE 2013), 18-20 June 2013, Washington DC, USA. (Acceptance rate 30%)

83. **Towards a Cyber Conflict Taxonomy**
Scott Applegate and Angelos Stavrou.
To appear in the Proceedings of the 5th International Conference on Cyber Conflict (CyCon 2013) NATO Cooperative Cyber Defence Centre of Excellence conference, 4-7 June 2013 in Tallinn, Estonia.

84. **Spectre: A Dependable Introspection Framework via System Management Mode**
Fengwei Zhang, Kevin Leach, Kun Sun, and Angelos Stavrou.
In the Proceedings of the 43nd Annual IEEE/IFIP International Conference on Dependable Systems and Networks (IEEE DSN 2013), Budapest, 24 - 27 June 2013. (Acceptance Rate: 19.6%)

85. **Exposing Software Security and Availability Risks For Commercial Mobile Devices (CMDs)**
Ryan Johnson, Zhaohui Wang, Angelos Stavrou, and Jeff Voas.
In the Proceedings of the IEEE RAMS 2013, Orlando, Florida, 28 - 31 January 2013.

86. **Malicious PDF Detection Using Metadata and Structural Features**
Charles Smutz and Angelos Stavrou.
In the Proceedings of the 2012 Annual Computer Security Applications Conference (ACSAC), Orlando, Florida, USA, December 3-7, 2012. (Acceptance Rate: 19%, 44/231)

87. **Malware Characterization using Behavioral Components**
Chaitanya Yavvari, Arnur Tokhtabayev, Huzefa Rangwala, and Angelos Stavrou.
In the Proceedings of 6th International Conference "Mathematical Methods, Models, and Architectures for Computer Network Security", St. Petersburg, Russia, October 17-20, 2012.

88. **Exposing Security Risks for Commercial Mobile Devices**(Invited)
Zhaohui Wang, Ryan Johnson, Rahul Murmuria, and Angelos Stavrou.
In the Proceedings of 6th International Conference "Mathematical Methods, Models, and Architectures for Computer Network Security", St. Petersburg, Russia, October 17-20, 2012.

89. **Mobile Application and Device Power Usage Measurements**
Rahul Murmuria, Jeffrey Medsger, Angelos Stavrou.
In the Proceedings of the 6th International Conference on Software Security and Reliability (SERE 2012), Washington, DC, June 2012.

90. **Netgator: Malware Detection Using Program Interactive Challenges**
Brian Schulte, Haris Andrianakis, Kun Sun, Angelos Stavrou.
In the Proceedings of the 9th Conference on Detection of Intrusions and Malware & Vulnerability Assessment (DIMVA 2012), Heraklion, Crete, Greece, July 26-27th, 2012.

91. **A Dependability Analysis of Hardware-Assisted Polling Integrity Checking Systems**
Jiang Wang, Kun Sun, and Angelos Stavrou.
In the Proceedings of the 42nd Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN 2012), Boston, Massachusetts, June, 2012.

92. **Implementing & Optimizing an Encryption File System on Android**
Zhaohui Wang, Rahul Murmuria, and Angelos Stavrou.
In the Proceedings of the IEEE International Conference on Mobile Data Management (IEEE MDM 2012), July 23 - 26, 2012, Bangalore, India. (Acceptance Rate: 22/88)

93. **Analysis Android Applications' Permissions** (short paper)
Ryan Johnson, Zhaohui Wang, Corey Gagnon and Angelos Stavrou.
In the Proceedings of the 6th International Conference on Software Security and Reliability (SERE 2012), Washington, DC, June 2012.

94. **Mutual Authentication for USB Communications** (short paper)
Zhaohui Wang, Ryan Johnson and Angelos Stavrou.
In the Proceedings of the 6th International Conference on Software Security and Reliability (SERE 2012), Washington, DC, June 2012.

95. **A Framework for Automated Security Testing of Android Applications on the Cloud** (short)
Sam Malek, Naeem Esfahani, Thabet Kacem, Riyadh Mahmood, Nariman Mirzaei, and Angelos Stavrou. In the Proceedings of the 6th International Conference on Software Security and Reliability (SERE 2012), Washington, DC, June 2012.

96. **SecureSwitch: BIOS-Assisted Isolation and Switch between Trusted and Untrusted Commodity OSes**
Kun Sun, Jiang Wang, Fengwei Zhang and Angelos Stavrou.
In the Proceedings of the 19th Annual Network & Distributed System Security Symposium NDSS 2012, San Diego, California, 5-8 February 2012. Impact Factor: 2.60 (Acceptance Rate: 46/258 - 17.8%). [Presentation]

97. **Hardware-Assisted Application Integrity Monitor**
Jiang Wang, Kun Sun, Angelos Stavrou.
In the Proceedings of IEEE Hawaii International Conference on System Sciences (HICSS45) pp. 5375-5383, 45th Hawaii International Conference on System Sciences, 2012 January 4-7, 2012, Grand Wailea, Maui, USA. Impact Factor: N/A, (Acceptance Rate: N/A).

98. **Cross-domain Collaborative Anomaly Detection: So Far Yet So Close**
Nathaniel Boggs, Sharath Hiremagalore, Angelos Stavrou, Salvatore J. Stolfo.
In the Proceedings of the 14th International Symposium on Recent Advances in Intrusion Detection (RAID). September 2011, Menlo Park, CA.
Impact Factor: 2.20 (Acceptance rate: 20/87 - 23%).

99. **Trading Elephants For Ants: Efficient Post-Attack Reconstitution (Short paper)**
Meixing Le, Zhaohui Wang, Quan Jia, Angelos Stavrou, Anup Ghosh and Sushil Jajodia
In the Proceedings of the 7th International ICST Conference on Security and Privacy in Communication Networks (Securecomm 2011), p. 1-10, September 7-9 2011, London.
Impact Factor: N/A, (Acceptance rate: 24%).

100. **Predicting Network Response Times Using Social Information (short paper)**
Chen Liang, Sharath Hiremagalore, Angelos Stavrou and Huzefa Rangwala.
In the Proceedings of the ACM 2011 Conference on Advances in Social Networks Analysis and Mining, p. 527-531, July, 2011, Kaohsiung, Taiwan. Impact Factor: N/A, (Acceptance rate: 25%) [bib]

101. **Breaching and Protecting an Anonymizing Network System**
Jason Clark and Angelos Stavrou.
In the Proceedings of the 6th Annual Symposium on Information Assurance (ASIA 2011).
Impact Factor: N/A, (Acceptance rate: 50%).

102. **Advantages and disadvantages of remote asynchronous usability testing using amazon mechanical turk**
Erik Nelson and Angelos Stavrou.
Proceedings of the Human Factors and Ergonomics Society 55th Annual Meeting, pages 1080-1084, HFES 2011 Conference, Red Rock Resort, Las Vegas, Nevada, September 19-23, 2011.
Impact Factor: N/A, (Acceptance rate: N/A).

103. **Exploiting Smart-Phone USB Connectivity For Fun And Profit (Extended Version)**
Angelos Stavrou and Zhaohui Wang.
BlackHat Technical Conference DC 2011 - Technical Briefings Session.

104. **Exploiting Smart-Phone USB Connectivity For Fun And Profit**
Zhaohui Wang and Angelos Stavrou.
In the Proceedings of the 26th Annual Computer Security Applications Conference (ACM ACSAC) p. 357-366. December 6-10, 2010, Austin, Texas, USA. Impact Factor: 1.82 (Acceptance rate: 39/227) [bib]

105. **Experimental Results of Cross-Site Exchange of Web Content Anomaly Detector Alerts**
Nathaniel Boggs, Sharath Hiremagalore, Angelos Stavrou, and Salvatore J. Stolfo.
In the Proceedings of IEEE Conference on Homeland Security Technologies (IEEE HST 2010), November 8-10, 2010, Waltham, MA, USA. Impact Factor: N/A (Acceptance rate: N/A).

106. **An Adversarial Evaluation of Network Signaling and Control Mechanisms**
Kangkook Jee, Stelios Sidiroglou-Douskos, Angelos Stavrou, and Angelos D. Keromytis.
In the Proceedings of the 13th International Conference on Information Security and Cryptology (ICISC).
December 2010, Seoul, Korea. Impact Factor: N/A (Acceptance rate: N/A).

107. **Small World VoIP**
Xiaohui Yang, Angelos Stavrou, Ram Dantu, and Duminda Wijesekera.
In the Proceedings of the Second International Conference on Mobile Computing, Applications, and Services MobiCASE, October 25-28, 2010, Santa Clara, CA, USA.
Impact Factor: N/A (Acceptance rate: N/A).

108. **QoP and QoS policy cognizant policy composition**
Paul Seymer, Angelos Stavrou, Duminda Wijesekera, Sushil Jajodia.
In the Proceedings of the IEEE International Symposium on Policies for Distributed Systems and Networks, p. 77-86, Fairfax, VA, July 21-23, 2010. (Acceptance rate: 19.2%) [bib]

109. **Providing Mobile Users' Anonymity in Hybrid Networks**
Claudio Ardagna, Sushil Jajodia, Pierangela Samarati, and Angelos Stavrou (Alphabetic)
In the Proceedings of the 15th European Symposium on Research in Computer Security (ESORICS 2010), p. 540-557, September 2010, Athens, Greece.
Impact Factor: 1.45 (Acceptance rate: 42/210 - 20%). [bib]

110. **Traffic Analysis Against Low-Latency Anonymity Networks Using Available Bandwidth Estimation**
Sambuddho Chakravarty, Angelos Stavrou, and Angelos D. Keromytis.
In the Proceedings of the 15th European Symposium on Research in Computer Security

(ESORICS 2010) p. 249-267, September 2010, Athens, Greece.
Impact Factor: 1.45 (Acceptance rate: 42/210 - 20%). [bib]

111. **HyperCheck: A Hardware-Assisted Integrity Monitor**
Jiang Wang, Angelos Stavrou, and Anup K. Ghosh.
In the Proceedings of 13th International Symposium on Recent Advances in Intrusion Detection (RAID 2010), p. 158-177, Ottawa, Canada, September 15-17, 2010.
Impact Factor: 2.20 (Acceptance rate: 24/104 - 23.1%). [bib]

112. **A Virtualization Architecture for In-Depth Kernel Isolation**
Jiang Wang, Sameer Niphadkar, Angelos Stavrou, Anup K. Ghosh.
In the Proceedings of 43rd Hawaii International International Conference on Systems Science, IEEE Computer Society, p. 1-10, 5-8 January 2010, Koloa, Kauai, HI, USA.
Impact Factor: N/A (Acceptance rate: N/A).

113. **Privacy preservation over untrusted mobile networks**
Claudio A. Ardagna, Sushil Jajodia, Pierangela Samarati, Angelos Stavrou in Privacy in Location-Based
Applications: Research Issues and Emerging Trends, Springer Lecture Notes in Computer Science, Volume
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114. **Deny-by-Default Distributed Security Policy Enforcement in Mobile Ad Hoc Networks (short)**
Mansoor Alicherry, Angelos D. Keromytis, and Angelos Stavrou.
In the Proceedings of the 5th International ICST Conference on Security and Privacy in Communication
Networks SECURECOMM 2009, p. 41-50. September 2009, Athens, Greece.
Impact Factor: N/A, (Acceptance rate: 25.3%). [bib]

115. **Adding Trust to P2P Distribution of Paid Content**
Alex Sherman, Angelos Stavrou, Jason Nieh, Angelos D. Keromytis, and Clifford Stein.
In the Proceedings of the 12th Information Security Conference (ISC), p.459-474.
September 2009, Pisa, Italy. Impact Factor: 1.24, (Acceptance rate: 27.6%). [bib]

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Angelos Stavrou, Ricardo A. Baratto, Angelos D. Keromytis, and Jason Nieh.
In the Proceedings of the 12th Information Security Conference (ISC), p. 186-201.
September 2009, Pisa, Italy. Impact Factor: 1.24, (Acceptance rate: 27.6%). [bib]

117. **Adaptive Anomaly Detection via Self-Calibration and Dynamic Updating**
Gabriela F. Cretu, Angelos Stavrou, Michael E. Locasto, Salvatore J. Stolfo.
In the Proceedings of 12th International Symposium On Recent Advances In Intrusion Detection, p. 41-60. Saint-Malo, Brittany, France, September 23-25, 2009.
Impact Factor: 2.20 (Acceptance rate: 17 / 59 - 28.8%). [bib]

118. **SQLProb: A Proxy-based Architecture towards Preventing SQL Injection Attacks**
Anyi Liu, Yi Yuan, Duminda Wijesekera, and Angelos Stavrou.
In the Proceedings of 24th Annual ACM Symposium on Applied Computing (SAC'09), p. 2054-2061
March 8-12, 2009, Honolulu, Hawaii. Impact Factor: N/A, (Acceptance Rate: 16.6%). [bib]

119. **A Security Architecture for Information Assurance and Availability in MANETs**
Angelos Stavrou, and Anup K. Ghosh.
In the Proceedings of IEEE Conference on Military Communications (MILCOM '08), p. 1 - 8, November 2008, San Diego, CA. Impact Factor: N/A, (Acceptance Rate: N/A).
Impact Factor: N/A, (Acceptance Rate: N/A). [bib]

120. **PAR: Payment for Anonymous Routing**
Elli Androulaki, Mariana Raykova, Shreyas Srivatsan, Angelos Stavrou, and Steven M. Bellovin.
In the Proceedings of 8th Privacy Enhancing Technologies Symposium, p. 219-236, Leuven, Belgium July 23 - July 25, 2008. Impact Factor: 1.95, Acceptance rate: 13/49 - 26%). [bib]

121. **The Hidden Difficulties of Watching and Rebuilding Networks.**
Michael Locasto and Angelos Stavrou.
IEEE Security and Privacy, vol. 6, no. 2, pp. 79-82, Mar/Apr, 2008.
Impact Factor: 1.17, (Acceptance Rate: N/A). [bib]

122. **Pushback for Overlay Networks: Protecting against Malicious Insiders**
Angelos Stavrou, Michael E. Locasto, and Angelos D. Keromytis.
In the Proceedings of the 6th International Conference on Applied Cryptography and Network Security (ACNS). June 2008, New York, NY.
Impact Factor: N/A, (Acceptance Rate: N/A). [bib]

123. **Casting out Demons: Sanitizing Training Data for Anomaly Sensors**
Gabriela F. Cretu, Angelos Stavrou , Michael E. Locasto, Salvatore J. Stolfo, and Angelos D. Keromytis.
In the Proceedings of the IEEE Symposium on Security & Privacy p. 81-95. May 2008, Oakland, CA.
Impact Factor: 4.15, (Acceptance Rate: 11.2%) [bib]

124. **On the Infeasibility of Modeling Polymorphic Shellcode**
Yingbo Song, Michael E. Locasto, Angelos Stavrou , Angelos D. Keromytis, and Salvatore J. Stolfo.
In the Proceedings of the 13th ACM Conference on Computer and Communications Security (CCS), pp. 541 - 551. October/November 2007, Alexandria, VA. Impact Factor: 2.87, (Acceptance rate: 18.1%) [bib]

125. **A Study of Malcode-Bearing Documents**
Weijen Li, Salvatore Stolfo, Angelos Stavrou, Elli Androulaki, and Angelos D. Keromytis.
In Proceedings of the 4th GI International Conference on Detection of Intrusions & Malware, and Vulnerability Assessment (DIMVA), pp. 231 - 250. July 2007, Lucerne, Switzerland.
Impact Factor: 1.42, (Acceptance rate: 21%). [bib]

126. **From STEM to SEAD: Speculative Execution for Automated Defense.**
Michael E. Locasto, Angelos Stavrou, Gabriela F. Cretu, and Angelos D. Keromytis.
In the Proceedings of the USENIX Annual Technical Conference (USENIX 2007), pp. 219-232, June 2007, Santa Clara, CA. Impact Factor: N/A, (Acceptance rate: 18.75%) [bib]

127. **Network Security as a Composable Service**
Stelios Sidiroglou, Angelos Stavrou, and Angelos D. Keromytis.
In the Proceedings of the IEEE Sarnoff Symposium. January 2007, Princeton, NJ. (Invited paper)

128. **Countering DDoS Attacks with Multi-path Overlay Networks**
Angelos Stavrou and Angelos D. Keromytis.
In the Information Assurance Technology Analysis Center (IATAC) Information Assurance Newsletter (IAnewsletter), vol. 9, no. 3, November 2006. (Invited paper, based on the CCS 2005 paper.)[pdf]

129. **W3Bcrypt: Encryption as a Stylesheet**
Angelos Stavrou, Michael E. Locasto, and Angelos D. Keromytis. In the Proceedings of the 4th International Conference on Applied Cryptography and Network Security (ACNS 2006), pp. 349-364, June 6-9, 2006, Singapore. Impact Factor: 1.44, (Acceptance rate: 33 / 218 - 15.1%) [bib]

130. **Countering DoS Attacks With Stateless Multipath Overlays**
Angelos Stavrou and Angelos D. Keromytis.
In the Proceedings of the 12th ACM Conference on Computer and Communications Security (CCS), pp. 249 - 259. November 2005, Alexandria, VA. Impact Factor: 2.87, (Acceptance rate: 15.2%) [bib]

131. **gore: Routing-Assisted Defense Against DDoS Attacks**
Stephen T. Chou, Angelos Stavrou, John Ioannidis, and Angelos D. Keromytis.
In the Proceedings of the 8th Information Security Conference (ISC), p. 179-193.
September 2005, Singapore. Impact Factor: 1.24, (Acceptance rate: 14%). [bib]

132. **MOVE: An End-to-End Solution To Network Denial of Service**
Angelos Stavrou, Angelos D. Keromytis, Jason Nieh, Vishal Misra, and Dan Rubenstein.
In the Proceedings of the Internet Society (ISOC) Symposium on Network and Distributed Systems Security
(NDSS), pp. 81 - 96. February 2005, San Diego, CA. Impact Factor: 2.60 (Acceptance rate: 12.9%).
[bib]

133. **Content distribution for seamless transmission**
Edward G. Coffman Jr., Andreas Constantinides, Dan Rubenstein, Bruce Shepherd, Angelos Stavrou
In the Proceedings of SIGMETRICS Performance Evaluation Review 32(2): 31-32 (2004) [pdf (936 KB)].

134. **A Pay-per-Use DoS Protection Mechanism For The Web**
Angelos Stavrou, John Ioannidis, Angelos D. Keromytis, Vishal Misra, and Dan Rubenstein.
In the Proceedings of the Applied Cryptography and Network Security (ACNS) Conference.
June 2004, Yellow Mountain, China. LNCS Volume 3089/2004, pp. 120-134, ISBN: 3-540-22217-0.
Impact Factor: 1.44 (Acceptance rate: 12%). [bib]

135. **Using Graphic Turing Tests to Counter Automated DDoS Attacks Against Web Servers**
William G. Morein, Angelos Stavrou, Debra L. Cook, Angelos D. Keromytis, Vishal Misra, Dan Rubenstein.
In the Proceedings of the 10th ACM International Conference on Computer and Communications Security
(CCS), Washington, DC, October 2003. Impact Factor: 2.87, (Acceptance rate: 13.8%) [bib]

136. **A Lightweight, Robust P2P System to Handle Flash Crowds**
Angelos Stavrou, Dan Rubenstein and Sambit Sahu.
In the Proceedings of IEEE ICNP 2002, Paris, France, November, 2002.
[Proceedings Version ps (252K)] [Proceedings Version ps.gz (65K)] [Proceedings Version pdf (143K)]
An earlier version is available as Columbia Technical Report EE020321-1, February, 2002.
[Tech Report ps (508K)] [Tech Report ps.gz (109K)] [Tech Report pdf (242K)].
Impact Factor: N/A, (Acceptance rate: 14.7%). [bib]

Books/Book Chapters

1. **Overlay-Based DoS Defenses**
Angelos Stavrou. In Henk C.A. van Tilborg and Sushil Jajodia, editors, Encyclopedia of Cryptography and Security, 2nd Edition. Springer, 2010.

2. **TCP Modulation Attacks**
Angelos Stavrou. In Henk C.A. van Tilborg and Sushil Jajodia, editors, Encyclopedia of Cryptography and Security, 2nd Edition. Springer, 2010.

Workshops

1. **Microservices made attack-resilient using unsupervised service fissioning [PDF]**
   Ataollah Fatahi Baarzi, George Kesidis, Dan Fleck, Angelos Stavrou.
   In EuroSec '20: Proceedings of the 13th European workshop on Systems Security, April 2020 Pages 31–36.

2. **Breaking BLE Beacons For Fun But Mostly Profit**
   Constantinos Kolias, Lucas Copi, Fengwei Zhang, Angelos Stavrou
   EUROSEC 2017: 4:1-4:6

3. **Your Data in Your Hands: Privacy-preserving User Behavior Models for Context Computation**
   Rahul Murmuria, Angelos Stavrou, Daniel Barbara, and Vincent Sritapan
   To appear in the proceedings of International Workshop on Behavioral Implications of Contextual Analytics (co-located with IEEE PerCom 2017)

4. **Authentication Feature and Model Selection using Penalty Algorithms**
   Rahul Murmuria and Angelos Stavrou.
   In the proceedings of the Twelfth Symposium on Usable Privacy and Security (SOUPS 2016). USENIX Association, 2016, Way workshop, Denver Colorado June 22-24, 2016

5. **Switchwall: Automated Topology Fingerprinting & Behavior Deviation Identification**
   Nelson Nazzicari, Javier Almillategui, Angelos Stavrou and Sushil Jajodia.
   In the Proceedings of the 8th International Workshop on Security and Trust Management (STM 2012) in conjunction with ESORICS 2012, Pisa, Italy - September 13-14, 2012

6. A Whitebox Approach for Automated Security Testing of Android Applications on the Cloud
   Riyadh Mahmood, Naeem Esfahani, Thabet Kacem, Nariman Mirzaei, Sam Malek, and Angelos Stavrou.
   In the Proceedings of the 7th International Workshop on Automation of Software Test (AST 2012), Zurich, Switzerland, June 2012.

7. The MEERKATS Cloud Security Architecture
   Angelos D. Keromytis, Roxana Geambasu, Simha Sethumadhavan, Salvatore J. Stolfo, Junfeng Yang, Azzedine Benameur, Marc Dacier, Matthew Elder, Darrell Kienzle, and Angelos Stavrou.
   In the Proceedings of the 3rd International Workshop on Security and Privacy in Cloud Computing (ICDCS-SPCC). June 2012, Macao, China.

8. CapMan: Capability-based Defense against Multi-Path Denial of Service (DoS) Attacks in MANET
   Quan Jia, Kun Sun and Angelos Stavrou.
   In the Proceedings of the First International Workshop on Privacy, Security and Trust in Mobile and Wireless Systems
   (MobiPST 2011) in conjunction with *20th International Conference on Computer Communications and Networks (ICCCN 2011)*

9. The MINESTRONE Architecture: Combining Static and Dynamic Analysis Techniques for Software Security
   Angelos D. Keromytis, Salvatore J. Stolfo, Junfeng Yang, Angelos Stavrou,
   Anup Ghosh, Dawson Engler, Marc Dacier, Matthew Elder, and Darrell Kienzle.
   In the Proceedings of the 1st Workshop on Systems Security (SysSec).
   July 2011, Amsterdam, Netherlands.

10. Firmware-assisted Memory Acquisition and Analysis tools for Digital Forensic (short paper)
Jiang Wang, Fengwei Zhang, Kun Sun, and Angelos Stavrou.
In the Sixth International Workshop on Systematic Approaches to Digital Forensic Engineering (IEEE SADFE 2011).
In conjunction with IEEE Security and Privacy Symposium, Oakland, CA, USA, May 26, 2011

11. Moving Forward, Building An Ethics Community (Panel Statements) - Computer Security Ethics, Quo Vadis?
Erin Kenneally, Angelos Stavrou, John McHugh, and Nicolas Christin.
In the proceedings of the 2nd Workshop on Ethics in Computer Security Research 2011
Springer Lecture Notes in Computer Science (LNCS).

12. Scalable Web Object Inspection and Malfease Collection
Charalampos Andrianakis, Paul Seymer, and Angelos Stavrou.
In the Proceedings of the 5th USENIX Workshop on Hot Topics in Security (HotSec '10).
August 10, 2010 Washington, DC. (Acceptance rate: 11/57)

13. Fine-grained Sharing of Health Records using XSPA Profile for XACML
A. Al-Faresi, Bo Yu, Khalid Moidu, Angelos Stavrou, Duminda Wijesekera, Anoop Singhal
In the Proceedings of 1st USENIX Workshop on Health Security and Privacy (HealthSec '10),
August, 2010, Washington DC, USA.

14. Evaluating a Collaborative Defense Architecture for MANETs
Mansoor Alicherry, Angelos Stavrou, and Angelos D. Keromytis.
In the Proceedings (electronic) of the IEEE Workshop on Collaborative Security Technologies (CoSec),
pp. 37 - 42. December 2009, Bangalore, India. (Acceptance rate: 17.2%).

15. Keep your friends close: the necessity for updating an anomaly sensor with legitimate environment changes.
Angelos Stavrou, Gabriela F. Cretu, Michael E. Locasto, Salvatore J. Stolfo.
In the Proceedings of the 2nd ACM Workshop on Security and Artificial intelligence
(Chicago, Illinois, USA, November 09 - 09, 2009). AISec '09. ACM, New York, NY, 39-46. (Position paper)

16. The Heisenberg Measuring Uncertainty in Lightweight Virtualization Testbeds
Quan Jia, Zhaohui Wang and Angelos Stavrou.
In the Proceedings of 2nd Workshop on Cyber Security Experimentation and Test
(CSET '09). August, 2009, Montreal, Canada.

17. Universal Multi-Factor Authentication Using Graphical Passwords
Alireza Pirayesh Sabzevar, and Angelos Stavrou.
In the Proceedings of the 2nd IEEE/ACM Workshop on Security and Privacy in
Telecommunications and Information Systems (SePTIS). December 2008, Bali, Indonesia.

18. Identifying Proxy Nodes in a Tor Anonymization Circuit
Sambuddho Chakravarty, Angelos Stavrou, and Angelos D. Keromytis.
In the Proceedings of the 2nd IEEE/ACM Workshop on Security and Privacy
in Telecommunications and Information Systems (SePTIS). December 2008, Bali, Indonesia.

19. A multi-path approach for k-anonymity in mobile hybrid networks
Claudio Agostino Ardagna, Angelos Stavrou, Sushil Jajodia, Pierangela Samarati and Rhandi Martin.
In the Proceedings of International Workshop on Privacy in Location-Based Applications (PiLBA '08), October 2008.

20. Efficiently Tracking Application Interactions using Lightweight Virtualization
Yih Huang, Angelos Stavrou, Anup K. Ghosh and Sushil Jajodia.
In the Proceeding of the 1st Workshop on Virtualization Security (VMSec), in conjunction with ACM CCS 2008, October 2008.

21. Return Value Predictability for Self-Healing
Michael E. Locasto, Angelos Stavrou>, Gabriela F. Cretu, Angelos D. Keromytis, and Salvatore J. Stolfo.
In the Proceedings of the 3rd International Workshop on Security (IWSEC), November 2008, Kagawa, Japan.

22. Online Training and Sanitization of AD Systems (extended abstract)
Gabriela F. Cretu, Angelos Stavrou, Michael E. Locasto, Salvatore J. Stolfo.
In the Proceedings of NIPS 2007 Workshop on Machine Learning in Adversarial Environments for Computer Security,
December 2007, Vancouver, B.C., Canada. [pdf]

23. Data Sanitization: Improving the Forensic Utility of Anomaly Detection Systems
Gabriela F. Cretu, Angelos Stavrou, Salvatore J. Stolfo, Angelos D. Keromytis.
In the Proceedings of the 3rd Workshop on Hot Topics in System Dependability (HotDep), pp. 64 - 70. June 2007, Edinburgh, UK. [pdf]

24. Bridging the Network Reservation Gap Using Overlays
Angelos Stavrou, David Turner, Angelos D. Keromytis, and Vassilis Prevelakis.
In the Proceedings of the 1st Workshop on Information Assurance for Middleware Communications (IAMCOM).
January 2007, Bangalore, India. [pdf] [ps]

25. Dark Application Communities
Michael E. Locasto, Angelos Stavrou, and Angelos D. Keromytis.
In the Proceedings of the 15th New Security Paradigms Workshop (NSPW 2006).
September 2006, Schloss Dagstuhl, Germany. [pdf] [ps]

Technical Reports

1. Netgator: Malware Detection Through Program Interactive Proofs
Brian Schulte, Rhandi Martin, Haris Andrianakis and Angelos Stavrou, GMU-CS-TR-2011-6

2. SecureSwitch: BIOS-Assisted Isolation and Switch between Trusted and Untrusted Commodity OSes
Kun Sun, Jiang Wang, Fengwei Zhang and Angelos Stavrou, GMU-CS-TR-2011-7

3. An Analysis of System Management Mode (SMM)-based Integrity Checking Systems and Evasion Attacks
Jiang Wang, Kun Sun and Angelos Stavrou, GMU-CS-TR-2011-8

4. Ruminate: A Scalable Architecture for Deep Network Analysis
Charles Smutz and Angelos Stavrou, GMU-CS-TR-2010-20.

Professional Activities & Service

Founder & CEO

- Kryptowire LLC (https://www.kryptowire.com/)

Founder & Chief Scientist

- Quokka INC (https://www.quokka.io)

Editorial Positions, Panels, and Boards

- IEEE Security and Privacy Magazine (01-01-2017 - Present)
  Type: Internet publication
  Role: Associate or guest editor/curator
- International Journal of Information Security (01-01-2019 - Present)
  Type: Journal
  Role: Editorial/curatorial board member
- IEEE Transactions on Computers (01-01-2020 - Present)
  Type: Journal
  Role: Associate or guest editor/curator
  Description: Associate Editor of IEEE Transactions on Computers
- IEEE Internet Computing (01-01-2020 - Present)
  Type: Journal
  Role: Associate or guest editor/curator

Past:

Associate Editor, IEEE Transactions on Reliability, September 2015 - 2020
IET Journal on Information Security, May 2010 – May 2018
Encyclopedia of Cryptography and Security, Editorial Board Member, March 2010 – 2020

Program Organization:

Program General co-Chair, ACM Conference on Computer and Communications Security (CCS) 2022
Program co-Chair, 10th European Workshop on Systems Security (EuroSec): 2017, 2018
Program co-Chair, Research in Attacks, Intrusions and Defenses (RAID) Symposium, RAID 2013, 2014
Student Travel Grant Chair, ACM Conference on Computer and Communications Security (CCS), 2009, 2010
Program co-Chair, Workshop on Cyber Security Experimentation and Test (CSET): 2009, 2010
Program co-Chair, 1st Workshop on Virtual Machine Security (VMSec): 2008, 2009

Program Committee Member (Selected):

IEEE Symposium on Security and Privacy (IEEE S&P): 2010, 2011, 2012, 2024, 2025
USENIX Security Symposium: 2007, 2008, 2009, 2020, 2021, 2023, 2024, 2025
ACM Conference on Security and Privacy in Wireless and Mobile Networks (WiSec) 2020
IEEE MILCOM (Track 3): 2016, 2017, 2018, 2024
IEEE Conference on Dependable and Secure Computing: 2017, 2024, 2025
IEEE International Conference on Software Quality, Reliability and Security: 2016
Recent Advances in Intrusion Detection (RAID): 2011, 2012, 2017
ACM Conference on Computer and Communications Security (CCS): 2009, 2010
Annual Computer Security Applications Conference (ACSAC): 2009, 2010, 2011, 2012, 2013
Network and Distributed System Security Symposium (NDSS): 2009, 2010
International Conference on Distributed Computing Systems (ICDCS): 2009, 2010, 2011, 2012, 2013
25th ACM Symposium On Applied Computing (SAC): 2010
Financial Cryptography and Data Security: 2010, 2011, 2012
5th ACM Int'l Conference on emerging Networking EXperiments and Technologies: 2009
USENIX Security Symposium: 2007, 2008, 2009
International ICST Conference on Security and Privacy in Communication Networks

(SecureComm), 2009, 2010, 2011
European Workshop on System Security (EUROSEC): 2008, 2009, 2010, 2011
IEEE International Symposium on Policies for Distributed Systems and Networks, POLICY 2010, 2011, 2012
ECML/PKDD Workshop on Privacy and Security issues in Data Mining and Machine Learning PSDML 2010
2nd USENIX Workshop on Large-Scale Exploits and Emergent Threats (LEET): 2009
European Conference on Computer Network Defense (EC2ND): 2008
Workshop on Cyber Security Experimentation and Test : 2008, 2013
Information Security Conference (ISC): 2008, 2009

Patent Litigation Experience

Expert witness for patent invalidity reports, depositions, patent office actions, Inter Partes Disputes preparation, product infringement reports, code and system examination.

Wilson Sonsini Goodrich & Rosati
Client: Wiz Inc
Patent Trial and Appeal Board Proceedings Between Wiz, Inc. and Orca Security Ltd
Multiple patents
Case: *Orca Security Ltd. V. Wiz, Inc., No. 1-23-cv-00758 (D. Del.)*
Deposed multiple times in the case involving six patents

Kirkland & Ellis LLP
Client: IBM Corporation and Red Hat, Inc. (collectively "IBM")
Case: *VirtaMove, Corp. v.* IBM Corp., Case No. 2:24-cv-00064 (E.D. Tex.).
Deposed in the case

Baker Botts LLP
Client: Hewlett Packard Enterprise Company
VirtaMove, Corp. v. Hewlett Packard Enterprise Company,
Case No. 2:24-cv-00093-JRG (E.D. Tex.)
Deposed in the case

Quinn Emanuel Urquhart & Sullivan, LLP
Client: Fortinet Inc.
Fortinet, Inc. v. Sophos, Inc
Case No 13-cv-05831-EMC (representing Fortinet)
Deposed in the case

Feinberg Day Alberti & Thompson LLP ("Feinberg Day")
Representing: Intellectual Ventures II L.L.C.
Case: Intellectual Ventures II L.L.C. v. JP Morgan Chase & Co. et al (representing IV)
Case: 1:13-cv-03777 | New York Southern District Court
Case: 1:13-cv-03777-AKH
Civil Action No. 2:13-cv-1106-AKK
Case: l:13-CV-02454-WSD
Case: 2:13-CV-04160-NKL
Case: 2:13-CV-785
Case: 8:13-cv-00167
Case: IPR2014-00786, Patent No. 6,826,694

IP Patent Consulting
Law firm: Brian Owens, Esq
Case: Multiple pertaining to analysis of patent validity.
Project: On-going consulting on patent infringement, validity, and claim construction

Patent Filling/Examination Experience

Consulted GMU legal team on patent filling, claim structure, and responses to USPTO examination and re-examination of relevant patents.

1. U.S. Patent Application 12/558,841 filed on September 14, 2009, entitled "Distributed Sensor for Detecting Malicious Software."
2. U.S. Patent Application 12/548,175 filed on August 26, 2009, entitled "Event Driven Email Revocation."
3. U.S. Patent Application 12/688,037 filed on January 15, 2010, entitled "Authentication Using Graphical Passwords."
4. U.S. Patent Application 12/757,675 filed on April 9, 2010, entitled "Malware Detector."
5. U.S. Patent Application 12/965,413 filed on December 10, 2010, entitled "Website Detection."
6. U.S. Patent Application 12/835,228 filed on July 13, 2010, entitled "Inferring Packet Management Utility Rules."
7. U.S. Patent Application 611413,673 filed on November 15, 2010, entitled "HyperCheck: A Hardware Assisted Integrity Monitor."
8. U.S. Patent Application 611413,677 filed on November 15, 2010, entitled "Network Traffic Analysis."

Consulted on more patents filled prior to 2007 while I was at Columbia University (worked with Columbia retained law firms).

Advisory Boards, Workshops & Other Professional Activities

Academic Program Director, Masters in Management of Secure Information Systems, George Mason University, 2014 – May 2017
Academic Program Director, Masters in Information Security and Assurance, George Mason University, 2013 - 2015
IEEE Rebooting Computing Committee, 2013 - onwards
Senior Member of the IEEE, 2012 - onwards
Subject Matter Expert, DARPA Transformative Applications, September 2010 - September 2012
USDA Federal Mobile Computing Summit, 2011
NIST Mobile & Smart Phone Technologies Technical Exchange Meeting, 2011
Google Faculty Summit, July 2010
ARO/NSF Workshop on Moving Target Defense, October 2010
National Science Foundation Panels: 2008, 2009
DARPA Cyber Genome Project, Dec 2009
DARPA Digital Object Storage and Retrieval (DOSR), July 2008
DARPA Intrinsically Assurable Mobile Ad-hoc Networks (IAMANETs), January 2008

Ph.D. Thesis Committee Service

1. **Mahmood Riyadh**, Electrical Engineering Department, George Mason University, Summer 2015.

2. **Velegalati Rajesh**, Electrical Engineering Department, George Mason University, Summer 2015.
3. **Yu Bo**, Computer Science Department, George Mason University, Fall 2014.
4. **Jin Jing,** Computer Science Department, George Mason University, Fall 2013.
5. **Xu Min,** Computer Science Department, George Mason University, Fall 2013.
6. **Caixia Wang**, Thesis title: "*Spatial content-based scene matching using a relaxation method*", Department of Geography and GeoInformation Science, George Mason University, November 2010.
7. **Mansoor Alicherry**, Thesis title: "*A Distributed Policy Enforcement Architecture for Mobile Ad Hoc Networks*",
   Computer Science Department, Columbia University, October 2010.
8. **Min Xu**, Thesis title: "*Session-aware RBAC Administration, Delegation, and Enforcement with XACML*",
   Computer Science Department, George Mason University, April 2010.

Post-Doctoral Researchers

Konstantinos Kolias (August 2014 - 2019)
Daniel Fleck (August 2012 - 2019)
Nelson Nazzicari (August 2010 - September 2011)
Arnur Tokhtabayev (May 2011 - November 2012)

Current Ph.D. Students

Full Time Ph.D. Students

1. Kenechukwu Nwondo (Auguest 2020 - present) co-advised with Dr. Haining Wang
2. Sudip Maitra (August 2021 – present) co-advised with Dr. Haining Wang
3. Shihua Sun (August 2021 – present), co-advised with Dr. Haining Wang
4. Amirreza Ghafoori (August 2023 – present)
5. Tanvi Garg (August 2023 – present)

Graduated Ph.D. Students

Shihua Sun (September 2020 – December 2025)

Tolga Atalay (September 2018 - December 2023

Alireza Famili (September 2017 - Summer 2023)

Mahsa Foruhandeh (part-time, graduated 2022)
- Thesis title: " *Thesis title: "Automatic Program State Exploration Techniques for Security Analysis of Android Apps"*
- Currently: Google Inc.

Ryan E. Johnson (January 2011 – December 2019)
- Thesis title: "*Automatic Program State Exploration Techniques for Security Analysis of Android Apps*"
- Post-graduation: Director of Research, Kryptowire LLC
- Currently: Director of Research, Kryptowire LLC

Rahul Murmuria (January 2011 – September 2017)

- Thesis title: "*Modeling User Behavior on Smartphones*"
- Post-graduation: Data Scientist, AppZen
- Currently: Senior Data Scientist at Sensor Tower

Mohamed Elsabagh (September 2012 – June 2017)
- Thesis title: " *Protection from Within: Runtime Hardening Techniques for COTS Binaries*"
- Post-graduation: Kryptowire LLC
- Currently: Kryptowire LLC

Charles Smutz (January 2009 - August 2016) (part-time Ph.D.)
- Thesis title: "*Countering Malicious Documents and Adversarial Learning*"
- Post-graduation: Sandia National Laboratories
- Currently: Sandia National Laboratories

Sharath Hiremagalore (September 2009 - August 2015)
- Thesis title: "*Zero-Day Attack Detection Using Collaborative and Transduction-Based Anomaly Detectors*"
- Post-graduation: Verisign
- Currently: Verisign

Fengwei Zhang (September 2011 - April 2015)
- Thesis title: "*Using Isolated Execution Environments for Securing Systems*"
- Post-graduation: Assistant Professor at Wayne State University
- Currently: Assistant Professor at Wayne State University

Quan Jia (September 2008 - January 2014)
- Thesis title: "*Mitigating Denial-of-Service Attacks in Contested Network Environments*"
- Post-graduation: MicroStrategy
- Currently: MicroStrategy

Zhaohui Wang (September 2008 - December 2012)
- Thesis title: "*Securing Smart Mobile Devices: A Data-Centric Approach*"
- Post-graduation: N/A
- Currently: N/A

Jiang Wang (January 2008 - July 2011)
- Thesis title: "*Hardware-Assisted Protection and Isolation*"
- Post-graduation: Riverbed Technology Inc.
- Currently: Riverbed Technology Inc.

Graduated MSc. Students

1. Charalampos Andrianakis (September 2008 - September 2011)
2. Rhandi Martin (January 2009 - January 2011)
3. Spyridon Panagiotopoulos (September 2009 - December 2011)
4. Chen Liang (September 2009 - December 2011)

Service at George Mason University

Volgenau School of Engineering, Academic Director, M.S. in Management of Secure Information Systems Program, School of Management (March 2014 - 2018)

Computer Science Department, ISA Admissions & Policy Committee (September 2008 - present)
Computer Science Department, Security Recruiting Committee (September 2010 - July 2011)
Computer Science Department, APR ISA Committee (September 2010 - July 2011)
USENIX Association Campus Representative (2010 - present)
Faculty Advisor, undergraduate student group: **GMU ECHO** (Electrical & Computer Hacking Organization) (September 2009 - 2013)
Faculty Advisor, graduate student group: **GMU Information Security Association** (November 2007 - November 2009)

Teaching Experience

Virginia Tech
(Scores indicate mean course quality rating from student survey out of a maximum of 6.0)
Fall 2025: ECE/CS 5984, Engineering Entrepreneurship
Spring 2024: MGT 5984, Eng. Prototyping & Proj. Management (**New: 15 students, class: :5.38)**
Fall 2023: ECE/CS 5984, Engineering Entrepreneurship **(New: 20 students, class: 5:43)**
Fall 2021: ECE/CS 5560, Fundamentals of Information Security (**71 students**)
Spring 2020: ECE/CS 5584, Nework Security **(18 students, Instr. :5.33, Class: 5.33)**
Fall 2020: ECE 4614, Telecommunication Networks **(33 students, Instr. :5.47, Class: 5.32)**

George Mason University
(Scores indicate mean course quality rating from student survey out of a maximum of 5.0)
Spring 2019: ISA 564/CS 499, Cyber Security Laboratory
Fall 2018: ISA 673, Operating Systems' Security
Fall 2017: CS 468, Secure Programing and Systems
Fall 2016: ISA 564, CS 499, Cyber Security Laboratory **(14 students, Instr.: 4.43, Class: 4.86)**
Fall 2015: ISA 564/CS 499, Cyber Security Laboratory **(19 students, Instr.: 4.13, Class: 4.31)**
Spring 2015: MSEC510, Foundations of Cyber Security **(31 students, Instr.: 4.39, Class: 4.33)**
Spring 2015: MSEC 650, Seminar: Enterprise Security Case St. **(18 students, Instr.: 4.36, Class: 4.27)**
Spring 2015: MSEC 720, Capstone Project Mgmt. Secure Info **(18 students, Instr.: 4.22, Class: 3.72)**
Spring 2015: ISA 785, Research in Digital Forensics **(13 students, no evaluation)**
Spring 2014: MSEC 511, Enterprise Security Practices **(21 students, Instr.: 4.22, Class: 3.72)**
Spring 2013: MSEC 642, Enterprise Security Technology **(27 students, Instr.: 4.55, Class: 4.54)**
Spring 2013: MSEC 511, Enterprise Security Practices **(21 students, Instr.: 4.67, Class: 4.50)**
Spring 2013: ISA 673, Operating Systems Security **(31 students, Instr.: 4.53, Class: 4.55)**
Fall 2012: ISA 674, Intrusion Detection **(29 students, Instr.: 4.71, Class: 4.71)**

Spring 2012 - Fall 2007. Weighted Average, Instructor: 4.66, Class: 4.53
Spring 2012: ISA 673, Operating Systems' Security **(36 students, Instr.: 4.71, Class: 4.48)**
Spring 2012: MSEC 511, Enterprise Security Practices **(30 students, Instr.: 4.93, Class: 4.77)**
Fall 2011: ISA 785, Research in Digital Forensics **(29 students, Instr.: 4.91, Class: 4.91)**
Fall 2010: ISA 862, Models for Computer Security (**23 students, Instr.: 4.89, Class: 4.84)**
Spring 2010: ISA 673, Operating Systems Security (**28 students, Instr.: 4.46, Class: 4.58)**
Fall 2009: CS 571, Operating Systems **(40 students, Instr.: 4.58, Class: 4.21)**
Spring 2009: ISA 564, Security Laboratory **(46 students, Instr.: 4.45, Class: 4.42)**
Fall 2008: ISA 656, Network Security **(28 students, Instr.: 4.81, Class: 4.69)**
Spring 2008: IT 862, Models for Computer Security **(29 students, Instr.: 4.38, Class: 4.25)**
Spring 2008: ISA 656, Network Security **(32 students, Instr.: 4.64, Class: 4.46)**
Fall 2007: ISA 656, Network Security **(30 students, Instr.: 4.68, Class: 4.50)**

Awarded Support for Research and Teaching (Gifts and Grants)

Total: ~$42,533,000 Total as PI: ~$34,682,500

1. **Co-PI CEISCA, Center of Excellence in Integrated Sensing and Cyber Applications, $1,000,000,** (Virginia Tech and Penn State University)

2. **PI DARPA CASTLE, $16,459,443, PI DARPA CASTLE, $16,459,443,** "Multi-Agent Training Exerciser (MATREX)" (A2Labs, Virginia Tech, SRC, RTX)

3. **PI DARPA STTR Twisted, Phase I, $67,500, 02/01/2021 – 11/30/2021** "Highly assured trusted information storage device" (with Trusted Science and Technology Inc.)

4. **PI DARPA WASH, ~$6,700,000, 03/01/2018 – 02/30/2022 via Kryptowire LLC** "SHINE: Sensing Health Innovatively Using Novel Empiricism"

5. **PI NIST, $473,632, 09/01/2016 - 08/31/2019** "Towards Measuring Security for IoT"

6. **Co-PI NSF, $299,935, 09/01/2016 - 08/31/2019** "City and County Cross Jurisdiction Cybersecurity Collaboration Capacity Building" (with J.P. Auffret)

7. **PI DARPA LADS (sub to PFP Cyber), $1,454,051, 05/01/2016 - 04/30/2020** "Enhanced Cyber Defense by Leveraging Involuntary Analog Emissions" (with J.P. Auffret)

8. **PI DARPA XD3, $4,433,701, 04/12/2016 - 06/30/2020** "Democratizing DDoS Defenses Using Secure Indirection Networks" (GMU-lead team with Columbia University, Penn. State, and BAE Systems, GMU portion **$1,529,742** without options) (with Dan Fleck)

9. **PI DAPRA XD3 (sub to Vencore, Inc), $944,150, 04/20/2016 - 04/19/2019** "Lookout - for the DARPA Extreme DDoS Defense- TA3" (with Dan Fleck)

10. **PI, Korea Agency for Defense Development, $267,682, 06/02/2014 - 02/15/2016,** "Technical consulting on the test and evaluation methodology for cyber-security technologies" (with J.P. Auffret)

11. **PI, NSF, $174,900, 09/01/2014 - 08/31/2017,** "TWC: TTP Option: Small: Collaborative: Scalable Techniques for Better Situational Awareness: Algorithmic Frameworks and Large-Scale Empirical Analyses" (with Fabian Monrose, UNC)

12. **Co-PI, DARPA (sub to Invincea Labs), $360,753, 01/15/2014 - 03/30/2015,** "TAPIO: Targeted Attack Premonition using Integrated Operational data sources" (with Dan Fleck)

13. **PI, NSF, $484,857, 08/01/2013 - 07/30/2016,** "Bridging the Cybersecurity Leadership Gap: Assessment, Competencies and Capacity Building" (with J.P. Auffret)

14. **PI, DHS/Purdue, $486,691, 07/01/2013 - 06/30/2016,** "Analysis of Mobile Application Communications Using GUI & Data Instrumentation"

15. **Co-PI, DHS, $256,000, 09/20/2012 - 08/31/2017,** "Graduate Fellowship Training for Homeland Security" (with Duminda Wijesekera and Damon McCoy)

16. **co-PI Google Research Award, $75,000, 06/2013** (with Damon McCoy)

17. **co-PI NSF II-New, $547,000 09/2012-08/2013,** "An Experimental Infrastructure for Cross-Domain Research in Wireless Computing, Cybersecurity and Data" (with Robert Simon, Daniel Barbara and Brian Mark)

18. **PI (GMU), DARPA MRC, $750,363 09/2011 - 01/2016,** "**MEERKATS**: **M**aintaining **E**nterpris**E** **R**esiliency via **K**aleidoscopic **A**daptation & **T**ransformation of **S**oftware **S**ervices",
(Part of team that includes Columbia University and Symantec Corp. total budget: $6,619,270)
(with Fei Li)
19. **PI, DARPA Transformative Applications/Aterrasys, $511,323 08/24/2011 - 08/24/2012,** "Securing Android Mobile Devices"
20. **PI, Army Research Office (ARO), DURIP $205,983 06/15/2011 - 06/14/2012,** "A VPN Proxy Cloud for Detecting HTTP & VoIP Malware" (with Anup Ghosh)
21. **PI, IARPA, $2,169,506 08/02/2010 - 05/31/2014,** "Securely Taking on New Executable Software of Uncertain Provenance (STONESOUP) Program" (with Anup Ghosh)
22. **PI, DARPA, $1,527,225 07/01/2010 - 06/30/2014**, "CyNomix: Detecting Zero-Day Malware by Generating Behavioral Cyber Genome Sequences" (with Huzefa Rangwala)
23. **PI, NIST/DARPA, $653,780 (+$300,000 Supplement) 08/01/2010 - 07/31/2013,** "Securing Android Smart-Phones via Automated Testing and Certified Communications" (with Anup Ghosh)
24. **co-PI, NIST, $431,902 07/01/2010 - 06/30/2013,** "Building Policies to Control Virtual Environments using the Policy Machine" (with Duminda Wijesekera)
25. **co-PI, DHS, $368,923/$980,000 08/27/2010 - 05/31/2011 (2010),** "ATHENA-Yukon Project" (with Anup Ghosh)
26. **co-PI, Secure Command, LLC $32,797 09/01/2010 - 03/31/2011,** "Enforcing Hardware-Assisted Integrity & Trust for Commodity Operating Systems" (with Kun Sun)
27. **PI, NSF, $239,884 09/2009-08/2011**, "TC: Small: Collaborative Research: Scalable Malware Analysis Using Lightweight Virtualization" (with Fabian Monrose)
28. **PI, Army Research Office (ARO), $342,400 09/2009-08/2011**, STTR Phase II: "Automatic Identification & Mitigation of Unauthorized Information Leaking from Enterprise Networks" (with Sushil Jajodia)
29. **co-PI, DARPA, $291,000 09/2009-08/2010**, "An Architecture for Providing High Assurance of Untrusted Applications on Wireless Handheld Devices" (with Anup Ghosh).
30. **co-PI, BAE Systems/DARPA, $59,875 1/1/09 - 09/11/2009,** "National Cyber Range" (with Anup Ghosh)
31. **PI, Google Inc: Research gift, $90,000 03/09,** (with Fabian Monrose)
32. **co-PI, AFOSR, $250,675 08/2009-08/2010**, DURIP: "A Laboratory for Large-Scale Testing of Self-Healing" (with Anup Ghosh)
33. **co-PI, Princeton University/DARPA, $84,937 8/16/08 - 8/31/09,** "Parallelizing Legacy Binary Code for Multi-Core Architectures via Extraction of Self-Similarity" (with Michael Locasto)
34. **co-PI, Army Research Office (ARO), DURIP $150,000 07/2009-07/2009**, "A Laboratory for Proactively Preventing Phishing and Malcode Attacks Using Web Crawlers",
(with Sushil Jajodia and Anup Ghosh)
35. **co-PI, DHS/I3P Dartmouth College, $60,000 11/2009,** "Securing the Railway IT Infrastructure",
(with Michael Locasto and Duminda Wijesekera)
36. **co-PI, AFOSR, $670,499 07/2009-07/2011**, "Secure Composition of Networked Systems Based on User Tasks and Organizational Policy" (with Duminda Wijesekera and Sushil Jajodia).

37. **co-PI, DARPA/BAE Systems, $50,000 1/1/09 - 6/30/09** "National Cyber Range" (with Anup Ghosh)
38. **PI DHS/I3P Dartmouth College: $150,000 8/10/08 - 8/9/09** "Open Taint: Flexible and Automatic Dataflow Tagging and Control for User-Level Programs" (with Michael Locasto)
39. **co-PI, Google Inc: Research gift, $25,000 03/08,** (with Steven M. Bellovin)
40. **co-PI, Secure Command, LLC: $50,000 9/19/08 - 3/18/09** "STTR: Fingerprinting Network Traffic" (with Sushil Jajodia)

Research Experience

Computer Science department, Columbia University,
Fu Foundation School of Engineering & Applied Science, New York, NY.
Research Assistant (Fall 2003 - Summer 2007).
Design and Implementation of protection mechanisms against DDoS Attacks using Overlay networks. | NSL Web page has more info on SOS/WEBSOS project.

Electrical Engineering department, Columbia University,
Fu Foundation School of Engineering & Applied Science, New York, NY.
Research Assistant (Spring 2002 - Fall 2003).
Design and implementation of a novel peer to peer client/server protocol in Java.
Performed Internet experiments using up to 180 concurrent nodes in various locations around the world.

European Union program TIDE/RISE for home networks application.
Development of robust home network applications for a controlled medical environment.

General Secretariat of Research and Technology of Greece.
Design and implementation of Industrial network for the Kopais industry as a part of a program from the General Secretariat of Research and Technology of Greece.

Prior to 2001 Work Experience

01/1999 - 12/2000: Network Administrator, University of Athens
03/1997 - 07/1998: Network Administrator. Westnet S.A.
09/1994 - 09/1997: University of Patras, Network Administrator

Academic Honors, Fellowships

IEEE Reliability Society
Award (2024) – awarded in June 2025.
Outstanding Research Award: 2016 Department of Computer Science, George Mason University.
IEEE Reliability Society Engineer of the Year Award (2012) - awarded January 2013.
Mason Masters In Secure Information Systems Outstanding Faculty of the Year Award (2013, 2014).
Mason Emerging Researcher/Scholar/Creator award: 2012 George Mason University (one out of three awards for 2012-2013).

Outstanding Research Award: 2010 Department of Computer Science, George Mason University.
Dissertation with Distinction Award: 2007 Computer Science Department, Columbia University.
CS Service Award: 2006 Computer Science Department, Columbia University.
Preceptor: Columbia University Fellow Spring 2004 & Fall 2005.
Best Teaching Assistant Award: Spring 2002, Columbia University.
Scholarship: from the graduate program of Algorithms, Logic & Computation for the first two years of study (1998-2000).
Greek National Fellowship Institution award: for being the second (2/180) for the first and third years of undergraduate study.

Professional References

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