ANGELOS STAVROU

527W, 113 street, Apt 4F, New York, NY 10025**,** +1-646-785-3516
angel@cs.columbia.edu

EDUCATION

- **Columbia University, Fu Foundation School of Engineering & Applied Science, New York, NY.**
  PhD candidate in Computer Science
  Advisor: Prof. Angelos Keromytis (expected June 2007).

- **Columbia University, Fu Foundation School of Engineering & Applied Science, New York, NY.**
  M.Phil. Degree in Computer Science (January 2007)
  MSc Degree in Electrical Engineering (December 2002).

- **National University of Athens, Athens Greece /Carleton University ON, Canada.**
  MSc Degree in Algorithms, Computability and Logic. (June 2001)
  Master's Thesis: "A new distributed algorithm for routing in satellite constellation networks" with Prof. E. Kranakis, SCS, Carleton University.

- **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.**
  BS in Physics, (July 1997)
  Thesis: "Stream Ciphers theory and practical applications".

PUBLICATIONS

1. **Data Sanitization: Improving the Forensic Utility of Anomaly Detection Systems**
   Gabriela F. Cretu, Angelos Stavrou, Salvatore J. Stolfo, Angelos D. Keromytis. To appear in the Proceedings of the 3rd Workshop on Hot Topics in System Dependability (HotDep). June 2007, Edinburgh, UK.

2. **A Study of Malcode-Bearing Documents**
   Weijen Li, Salvatore Stolfo, Angelos Stavrou, Elli Androulaki, and Angelos D. Keromytis. To appear in the Proceedings of the 4th GI International Conference on Detection of Intrusions & Malware, and Vulnerability Assessment (DIMVA). July 2007, Lucerne, Switzerland.

3. **From STEM to SEAD: Speculative Execution for Automated Defense.**
   Michael E. Locasto, Angelos Stavrou, Gabriela F. Cretu, and Angelos D. Keromytis. To appear in Proceedings of the USENIX Annual Technical Conference (USENIX 2007), June 2007, Santa Clara, CA. *An earlier draft of this work is available as Columbia University CS Tech Report CUCS-004-07* (Acceptance rate: 18.75%)

4. **Network Security as a Composable Service**
   Stelios Sidiroglou, Angelos Stavrou, and Angelos D. Keromytis. To appear in the Proceedings of the IEEE Sarnoff Symposium. May 2007, Princeton, NJ. (Invited paper)

5. **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]

6. **Countering DDoS Attacks with Multi-path Overlay Networks**
   Angelos Stavrou and Angelos D. Keromytis. In Information Assurance Technology Analysis Center (IATAC) Information Assurance Newsletter (IAnewsletter), vol. 9, no. 3, pp. 26 - 30, Winter 2006. (Invited paper, based on the CCS 2005 paper.) [pdf]

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

8. **W3Bcrypt: Encryption as a Stylesheet**
   Angelos Stavrou, Michael E. Locasto, and Angelos D. Keromytis. In Proceedings of the 4th International Conference on Applied Cryptography and Network Security (ACNS), pp. 349-364, June 6-9, 2006, Singapore. [pdf(305KB)] [ps (1.2MB)].

9. **Countering DoS Attacks With Stateless Multipath Overlays**
   Angelos Stavrou and Angelos D. Keromytis. In Proceedings of the 12th ACM Conference on Computer and Communications Security (CCS), pp. 249 - 259. November 2005, Alexandria, VA. (Acceptance rate: 15.2%)
   [pdf (500KB)] [ps (1.9MB)].

10. **gore: Routing-Assisted Defense Against DDoS Attacks**
    Stephen T. Chou, Angelos Stavrou, John Ioannidis, and Angelos D. Keromytis. In Proceedings of the 8th Information Security Conference (ISC), pp. 179 - 193. September 2005, Singapore. (Acceptance rate: 14%)
    [pdf (5.4MB)] [pdf image compressed (251KB)] [ps (1MB)].

11. **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, pp. 781 - 807. August 2005.
    [pdf (255KB)] [ps (1.4MB)].

12. **MOVE: An End-to-End Solution To Network Denial of Service**
    Angelos Stavrou, Angelos D. Keromytis, Jason Nieh, Vishal Misra, and Dan Rubenstein. In Proceedings of the Internet Society (ISOC) Symposium on Network and Distributed Systems Security (SNDSS), pp. 81 - 96. February 2005, San Diego, CA.
    (Acceptance rate: 12.9%). [pdf (3.9MB)] [ps (1.2MB)].

13. **Content distribution for seamless transmission**
    Edward G. Coffman Jr., Andreas Constantinides, Dan Rubenstein, Bruce Shepherd, Angelos

Stavrou. In SIGMETRICS Performance Evaluation Review 32(2): 31-32 (2004)
[pdf (936 KB)].

14. **A Pay-per-Use DoS Protection Mechanism For The Web**
Angelos Stavrou, John Ioannidis, Angelos D. Keromytis, Vishal Misra, and Dan Rubenstein.
In 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 [pdf (195KB)] [ps (1.2M)].

15. **A Lightweight, Robust, P2P System to Handle Flash Crowds**
Angelos Stavrou, Dan Rubenstein, Sambit Sahu.
IEEE Journal on Selected Areas in Communications (JSAC), special issue on Service Overlay Networks, Volume 22, Number 1, January 2004.
[pdf 226KB] [ps 421KB].

16. **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 Proceedings of the 10th ACM International Conference on Computer and Communications Security (CCS), Washington, DC, October 2003.
[ps (884K)] [ps.gz (421K)] [pdf (225K)].

17. **A Lightweight, Robust P2P System to Handle Flash Crowds**
Angelos Stavrou, Dan Rubenstein and Sambit Sahu.
In 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)].

Technical Reports

- **Quantifying Application Behavior Space for Detection and Self-Healing.**
Michael E. Locasto, Angelos Stavrou, Gabriela F. Cretu, Angelos D. Keromytis and Salvatore J. Stolfo. Tech Report CUCS-017-06. Department of Computer Science, Columbia University. April 2006.

- **Exploiting the Structure in DHT Overlays for DoS Protection**
Angelos Stavrou, Angelos D. Keromytis, and Dan Rubenstein. Columbia University Computer Science Department Technical Report CUCS-019-04, May 2004.

Master Thesis

- **Routing in Satellite Networks**, Fall 2001, Msc Thesis (in Greek)
[Thesis in ps (7MB)] [Thesis in ps.gz(2.1MB)][Thesis in pdf (960K)].

ACTIVITIES & SERVICE

Program Committee, 16th USENIX Security 2007
Web Master, Sigmetrics-Performance 2004

TEACHING EXPERIENCE

Instructor:

Fall 2005: COMS W4995-1 (Special Topics) Networking Laboratory **(23 students)**

Spring 2005: COMS W1001 Introduction to Computers **(30 students)**

Fall 2004: COMS W1001 Introduction to Computers **(33 students)**

Teaching Assistant:

Fall 2003: COMS W4180 Network Security

Spring 2002: ELEN E4710y, An Introduction to Network Engineering

Fall 2001: ELEN E3910, Elements of Digital Systems

RESEARCH EXPERIENCE

Computer Science department, Columbia University, Fu Foundation School of Engineering & Applied Science, New York, NY.
Research Assistant (Fall 2003 - now). 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 to measure our protocol with up to 180 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.

WORK EXPERIENCE

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

INTERNSHIPS

Microsoft Research Cambridge, UK, Summer 2006.
Work on improving the worm filters for the Vigilante Project.
Hosts: Manuel Costa and Miguel Castro.

GOOGLE INC *Summer and Fall 2004.*
Working with security group on various protection mechanisms.
Host: Niels Provos.

International Computer Science Institute (ICSI, Berkeley, CA, USA) Summer 2002.
Design and Implementation of a Tool to estimate the TCP Loss Events and RTT of individual TCP flows using Passive analysis of raw TCP packets obtained from tcpdump software package.
Hosts at ICIR: Eddie Kohler, Sally Floyd.

ACADEMIC HONOURS, FELLOWSHIPS

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.

REFERENCES

Professor Angelos D. Keromytis
515 Computer Science Building
Department of Computer Science
Columbia University
1214 Amsterdam Avenue, M.C. 0401
New York, NY 10027-7003
email: angelos@cs.columbia.edu
+1 212 939 7095 (voice)
+1 212 666 0140 (fax)

Professor Salvatore Stolfo
Department of Computer Science
Columbia University
1214 Amsterdam Avenue, M.C. 0401
New York, NY 10027-7003
email: sal@cs.columbia.edu
+1 646 775 6043 (voice)
+1 212 666 0140 (fax)

Professor Jason Nieh
518 Computer Science Building
Department of Computer Science
Columbia University
1214 Amsterdam Avenue, M.C. 0401
New York, NY 10027-7003
email: nieh@cs.columbia.edu
+1 212 939 7160 (voice)
+1 212 666 0140 (fax)

Professor Steven M. Bellovin
454 Computer Science Building
Department of Computer Science
Columbia University
1214 Amsterdam Avenue, M.C. 0401
New York, NY 10027-7003
email: smb@cs.columbia.edu
+1 212 939 7149 (voice)
+1 212 666 0140 (fax)

Dr. Niels Provos
Google INC. (Headquarters)
1600 Amphitheatre Parkway
Mountain View, CA 94043
email: niels@google.com
+1 650-253-0000 (voice)
+1 650-253-0001 (fax)