1. Evolution of CSI

**Background: 2004-2007:** UTD Established the Emergency Preparedness and Digital Forensics Institute in 2002 and subsequently obtained the CAE in June 2004. The research component of the Institute was established in October 2004 when Dr. Bhavani Thuraisingham was hired from the MITRE Corporation to head the Cyber Security Research Center (CSRC). Dr. Thuraisingham had worked in Cyber Security for around 19 years at that time including at Honeywell and MITRE and was an advisor to Mr. Mike Ware at NSA/R23 for several years. She joined UTD after a three year stint as a Program Director at NSF where she established the Data and Applications Security Initiative and was one of the co-founders of the Cyber Trust Theme. In October 2004, the Institute changed its name to Cyber Security and Emergency Preparedness Institute (CSEPI) whose executive director was Dr. Douglas Harris. CSRC was part of the CSEPI. Between 2004 and 2007, Dr. Thuraisingham expanded CSRC by hiring Dr. Murat Kantarcioglu, an expert in data security and privacy, form Purdue and Dr. Kevin Hamlen, an expert in software and language security, from Cornell, both as assistant professors. Dr. Latifur Khan, PhD from U. Southern CA, who was already at UTD and is a data analytics expert, also joined the center. Back in January 2008, CSRC’s research funding had reached $1M (with grants from AFOSR, NSF and Raytheon). Over the years CSRC evolved into a separate institute called the Cyber Security Research and Education Institute (CSI) focusing solely on IA/CD (Cyber Security) research and education. Its total research funding since its inception in October 2004 (as CRSC) which was around $1M in Fall 2007 has grown to over $22M in Fall 2013 and the education funding is around $3M. Furthermore, our PhD production for CSRC which was three in Fall 2007 and has now grown to 31 for CSI in addition to over 40 PhD students currently enrolled in the program. Below we give the significant progress CSI has made over the past 5-6 years.

**Progress during 2008 - 2009:** 2008 was a breakthrough year for CSI. Dr. Kevin Hamlen had received the AFOSR YIP (Young Investigator Program Award) in late 2007, and we received an AFOSR MURI Grant on assured information sharing for $1M in March 2008. We also received grants from NGA and NASA to develop data analytics techniques. In addition we received a large grant from AFOSR on Secure semantic service oriented grid which evolved into secure cloud computing ($2.4M). In late 2008, Dr. Kantarcioglu received an NSF CAREER award as well as an NIH Grant in 2009. We also received an IARPA grant under the KDD program (through NSF) to develop semantic web technologies for security applications. By the end of 2009 our research funding had increased to around $8M. At the same time we started publishing in top tier data security conferences including in the Proceedings of IEEE ICDE and IEEE ICDM as well as several IEEE Transactions. During this time we graduated around five more PhD students.

It was during this time that Dr, Kantarcioglu started collaborating with the Jindal School of Management as well as the School of Economics, Policy and Political Sciences (EPPS) on topics such as risk based data privacy and incentive based assured information sharing. We developed novel results on applying game theory to cyber security and we published papers in several interdisciplinary venues such as GameSec. We are now known as a team to be one of the leaders in interdisciplinary research in cyber security.

We also established strong collaborations with several universities through funded projectors. Our close collaborators include Purdue University, UMBC, UIUC, MIT, UTSA, U of MI, U of MN, UTEP, Vanderbilt, UIC, and UCI. We continued our collaboration with Raytheon and published several papers with the Raytheon team.

**Progress during 2010-2012: Dr. Kamil Sarac** who was conducting research in Network measurements and Security joined our team as the Director of Education and we were successful in obtaining a $1.8M NSF SFS Grant in Fall 2010 to educate US Citizen students to obtain their MS degrees in IA/CD. To date we have 100% placement with many of our students joining NSA. Dr. Sarac established the annual TexSAW (Texas
Security Awareness Week) which includes a symposium and student workshops to motivate and encourage students in Texas to learn cyber security.

We continued to make significant progress with respect to funding, PhD students and papers. We received multiple large grants from NSF and AFOSR as well as grants from ONR, ARO, DARPA, and DOE (via Sandia). The topics included Secure Sensor/Social Web ($1.6M), Secure data provenance (close to $1M), Secure, Adversarial Mining, Privacy preserving Record Integration, and Mobile Systems Malware Detection close to $1M). **Dr. Zhiqiang Lin**, an expert in systems security and forensics, joined the team in September 2011 after his PhD from Purdue. In addition **Dr. Yiorgos Makris**, whose expertise is in hardware security, joined us from Yale as associate professor in Computer Engineering. Dr. Hamlen received a NSF CAREER award. Dr. Lin received a gift from VMWare to conduct research in secure virtualization. We published papers not only in the top tier data conferences such as ACM KDD, but also in top tier cyber security conferences including IEEE Security and Privacy Symposium (aka Oakland) and ACM Conference on Computers and Communications Security (CCS). We graduated around 21 PhD students during this time.

Subsequently in August 2012, a world-famous cryptographer **Dr. Yvo Desmedt** joined our team from University College London. We also received prestigious external awards for our work. For example, Dr. Thuraisingham received the IEEE SMC/TS Research Leadership Award in Intelligence and Security Informatics, and the prestigious ACM SIGSAC Outstanding Contributions Award for research contributions and leadership in Data and Applications Security. She also received the Transformative Achievement Medal for her work on integrating computer sciences with social sciences from the Society for Design and Process Science. Dr. Khan received both the ACM Distinguished Scientist and IEEE SMC/TS Technical Achievement Award and Dr. Hamlen received worldwide coverage for his research on the Frankenstein Malware.

**Progress during 2013-2014:** In January 2013 **Dr. Alvaro Cardenas** joined CSI as an assistant professor after his PhD at U of MD College Park and post doctorate research at UC Berkeley. His expertise is in control systems security and critical infrastructure protection. He began a collaboration with NIST as well as with MITRE and has a joint project with MITRE on control systems security. Due to his initiative, UTD hosted the very important NIST Cyber Security Framework Workshop (Executive Order) in September 2013.

In the meantime we continued to expand our research funding as well as publish papers in top tier venues. In August 2013 we were very fortunate to have **Dr. Zygmunt Haas** join our team. Dr. Haas is a PhD from Stanford and was a Professor at Cornell University and an expert in wireless network security. We also explored new areas by collaborating with professors from the Brain and Behavioral Sciences by investigating how hackers think. We graduated four more PhD students in 2013 and hope to graduate several more in May 2014. The IBM Vice President for Research visited us in February 2013 and she was very impressed with our cyber security program and nominated Dr. Bhavani Thuraisingham for an IBM Faculty Award in Cyber Security. Dr. Thuraisingham received this award in November 2013 in New York. To continue our industry collaboration, UTD’s NSF IUCRC on Network Centric Systems joined our Institute. We work with this IUCRC through our collaboration with Raytheon. In December 2013 Dr. Thuraisingham was named one of the top 15 cyber security professors [http://www.forensicscolleges.com/blog/profs/15-top-cyber-security-professors](http://www.forensicscolleges.com/blog/profs/15-top-cyber-security-professors).

In January 2014 Dr. Zhiqiang Lin received his AFOSR YIP Award. This is a significant achievement. CSI now has two NSF CAREER and two AFOSR YIP awards. Two of our members are still assistant professors and therefore we hope to receive more such awards in the future. CSI members continue to give numerous keynote addresses at major international conferences, serve on editorial boards of several IEEE/ACM Transactions and chair conferences in IA/CD. In April 2014, Dr. Hamlen along with his student received worldwide coverage of their solution to fight the Heartbleed bug.

**Future Plans:** Technical excellence is our main objective. Grants are a way to achieve this excellence. Therefore, we will work hard to get grants, continue to produce quality research, collaborate with our peers
and produce PhD graduates. While we now have 10 core cyber security faculty, we have several affiliated faculty across the different schools at the university. These faculty conduct research in computer sciences related topics such as networks, fault tolerance systems, software engineering, theory and real-time systems as well as risk analysis and behavioral economics. We plan to make significant progress with our interdisciplinary research as well as research in the core IA/CD areas. As a team we are ethnically diverse and our technical skills complement each other. One area we are looking to hire in the future is in Usable Security and Privacy. We would also like to add another female faculty to our team. We will also focus more towards increasing our industry sponsorship by continuing to work with the IUCRC.

We get substantial support and encouragement from the Senior Administration at UTD. We believe that within the next 5 years we are poised to be one of the premier cyber security research institutes in the USA.

2. Sample Faculty Papers


3. Sample Student Papers


- "SMV-Hunter: Large Scale, Automated Detection of SSL/TLS Man-in-the-Middle Vulnerabilities in Android Apps". David Soumhiraraj, Justin Sahs, Zhiqiang Lin, Latifur Khan, and Garrett Greenwood.


4. Sample List of PhD dissertations (with links)


5. Biographies of Core Faculty in Cyber Security

**Dr. Bhavani Thuraisingham**: [Link](http://www.utdallas.edu/~bxt043000/)

Dr. Bhavani Thuraisingham is the Louis A. Beecherl, Jr. Distinguished Professor of Computer Science and the Executive Director of the Cyber Security Research and Education Institute (CSI) at The University of Texas at Dallas. She is an elected Fellow of IEEE, the AAAS, the British Computer Society, and the SPDS (Society for Design and Process Science). She received several prestigious award including IEEE Computer Society's 1997 Technical Achievement Award for “outstanding and innovative contributions to secure data management”, the 2010 ACM SIGSAC (Association for Computing Machinery, Special Interest Group on Security, Audit and Control) Outstanding Contributions Award for “seminal research contributions and leadership in data and applications security for over 25 years” and the SDPS Transformative Achievement Medal for her contributions to interdisciplinary research. She has unique experience working in commercial industry, research laboratory, US government and academia and her 30+ year career includes research and development, technology transfer, product development, program management, and consulting for the federal government. Her work has resulted in 100+ journal articles, 200+ conference papers, 100+ keynote and invited talks, five US patents (two pending) and twelve books. She received a BSc in Mathematics and Physics from the University of Ceylon, MSc in Mathematical Logic from the University of Bristol England and a PhD in Theory of Computation from the University of Wales UK. She received the prestigious earned higher doctorate degree for her published research in Secure Dependable Data Management at the University of Bristol in England.

**Dr. Kamil Sarac**: [Link](http://www.utdallas.edu/~ksarac/)

Kamil Sarac is an Associate Professor of computer science at The University of Texas at Dallas. He is also serving as the director of the information assurance education programs in CSI. In addition, he is
the principal investigator of UTD’s NSF SFS program and is the focal point for the CAE/CAE-R efforts. His research interests include computer networks and protocols, network security, network and service monitoring and Internet measurements. Part of Dr. Sarac's work in IP multicast monitoring and management domain has been adapted by the industry through IETF standardization process. Dr. Sarac obtained his MS and PhD degrees in computer science at the University of California at Santa Barbara in 1997 and 2002 respectively. He is a senior member of IEEE. He is also a recipient of the Erik Jonsson School's Outstanding Faculty Teaching Award for 2014.

Dr. Murat Kantarcioglu: http://www.utdallas.edu/~muratk/cgi-bin/index.php
Murat Kantarcioglu, Ph.D. is an Associate Professor in the Computer Science Department and Director of the Data Security and Privacy Lab at the University of Texas at Dallas. He is also a visiting scholar at the Data Privacy Lab at Harvard University. Dr. Kantarcioglu’s research focuses on creating technologies that can efficiently extract useful information from any data without sacrificing privacy or security. He has published over 100 papers in peer reviewed journals and conferences. His research has been supported by grants from NSF, AFOSR, ONR, NSA, and NIH and has received two best paper awards. He is a recipient of the NSF CAREER award and his research has been reported on in the media, including the Boston Globe and ABC News. He holds a B.S. in Computer Engineering from Middle East Technical University, and M.S. and Ph.D degrees in Computer Science from Purdue University. He is a senior member of IEEE and ACM.

Dr. Kevin Hamlen: http://www.utdallas.edu/~hamlen/
Dr. Kevin Hamlen is an Associate Professor in the Computer Science Department at UTD, and a Senior Technical Advisor for UTD's Cyber Security Research and Education Institute. His research applies and extends compiler theory, functional and logic programming, and automated program analysis technologies toward the development of scientifically rigorous software security systems. Over the past five years his work has received over $8 million in federally funded research awards, including a CAREER award from the National Science Foundation and a Young Investigator Program (YIP) award from the Air Force Office of Scientific Research. His most recent research on secure binary retrofitting and reactively adaptive malware received three best paper awards in 2011-2012, and he has been featured in thousands of news stories worldwide, including The Economist and New Scientist. He is also a recipient of the Erik Jonsson School's Faculty Research Award and Outstanding Teaching Award for 2012 and 2013, respectively. Dr. Hamlen received his Ph.D. and M.S. degrees from Cornell University, and his B.S. from Carnegie Mellon University, where his work on proof-carrying code garnered the Allen Newell Award for Excellence in Undergraduate Research.

Dr. Zhiqiang Lin: http://www.utdallas.edu/~zhiqiang.lin/
Zhiqiang Lin is an Assistant Professor of Computer Science at The University of Texas at Dallas and earned his my PhD from Computer Science Department of Purdue University in 2011. He established and is directing the Systems and Software Security (S^3) Lab under the Cyber Security Research and Education Institute (CSI). His research interests are in systems security and malware analysis and forensics. He has published papers in top tier venues including IEEE Security and Privacy Symposium and ACM CCS. He is the 2014 recipient of an AFOSR YIP (Young Investigator Program) Award. His research is also funded by DARPA and VMware.

Dr. Yvo Desmedt: http://www.utdallas.edu/~Yvo.Desmedt/
Yvo Desmedt received his Ph.D. (Summa cum Laude) from the University of Leuven, Belgium (1984). At present he is a Jonsson Distinguished Professor at The University of Texas at Dallas. He has held visiting appointments at AIST (Japan), Macquarie University (Australia), Technion (Israel), Tokyo Institute of Technology (Japan), Universite de Montreal (Canada), University of Karlsruhe (Germany), etc. Prior to joining UTD, he was the BT Chair at University College, London. He is an (associate)
editor of The Journal of Computer Security. He is also the Editor-in-chief of IET Information Security. He was program chair of Crypto 1994, the ACM workshop on Scientific Aspects of Cyber Terrorism 2002, PKC 2003, ICITS 2007, and co-program chair of CANS 2005. He was an invited speaker at conferences and workshop in 5 continents. He has authored over 200 refereed papers. His publications include several in CRYPTO and EUROCRYPT conferences. He is a Fellow of the International Association of Cryptologic Research (IACR), since 2010.

**Dr. Yiorgos Makris:** [http://www.utdallas.edu/~yiorgos.makris/](http://www.utdallas.edu/~yiorgos.makris/)

Yiorgos Makris is an Associate Professor in the department of Electrical Engineering at the Erik Jonsson School of Engineering & Computer Science at The University of Texas at Dallas since July 2011. Prior to joining UT Dallas, he spent 10.5 years as a faculty member of Electrical Engineering and of Computer Science at Yale University. He holds a Ph.D. (2001) and an M.S. (1997) in Computer Engineering from the University of California, San Diego, and a Diploma of Engineering (1995) in Computer Engineering and Informatics from the University of Patras, Greece. At UT Dallas, he leads the Trusted and RELiable Architectures (TRELA) Research Laboratory. His main research interests lie in the application of machine learning and statistical analysis towards developing reliable and trusted integrated circuits, with particular emphasis in the analog/RF domain. He is also investigating error detection and correction methods for modern microprocessors, as well as novel computational modalities using emerging technologies. His research activities have been supported by NSF, ARO, SRC, DARPA, Boeing, IBM, LSI, Intel, and TI. He serves as the program chair of the IEEE VLSI Test Symposium in 2013-2014 and of the Test Technology Educational Program (TTEP) in 2010-2012. He has also has served as a guest editor for the IEEE Transactions on Computers and as a topic coordinator and/or program committee member for several IEEE and ACM conferences. He is a Senior Member of the IEEE, a recipient of the 2006 Sheffield Distinguished Teaching Award and a recipient of the Best Paper Award from the 2013 Design Automation and Test in Europe (DATE’13) conference.

**Dr. Alvaro Cardenas:** [http://www.utdallas.edu/~alvaro.cardenas/](http://www.utdallas.edu/~alvaro.cardenas/)

Alvaro A. Cárdenas is an Assistant Professor at the Department of Computer Science in the Erik Jonsson School of Engineering at The University of Texas at Dallas, where he is a member of the Cyber Security Research and Education Institute. He holds M.S. and Ph.D. degrees from the University of Maryland, College Park, and a B.S. from Universidad de los Andes, Colombia. Before joining UT Dallas, he was a postdoctoral scholar at the University of California, Berkeley, and a research staff member at Fujitsu Laboratories of America in Sunnyvale, California. He has also been an invited visiting professor at the University of Cagliari in Italy, an intern at INRIA-LORIA in France, and a SCADA intern working on ladder logic to replace legacy relay boxes at Occidental Petroleum Corporation in Caño Limón, Cobeñas, Colombia. His research interests focus on computer security, cyber-physical systems, network intrusion detection, and wireless networks. He has contributed to multiple NIST recommendation documents, has an RFC wireless standard from the IETF, and holds several patents. He has also received numerous awards for his research, including a best paper award from the U.S. Army Research Office, and a Graduate School Fellowship from the University of Maryland.

**Dr. Zygmunt Haas** [http://www.utdallas.edu/~zjh130030/](http://www.utdallas.edu/~zjh130030/)

Zygmunt J. Haas received his B.Sc. in EE in 1979 and M.Sc. in EE in 1985. In 1988, he earned his Ph.D. from Stanford University and subsequently joined AT&T Bell Laboratories in the Network Research Department. There he pursued research on wireless communications, mobility management, fast protocols, optical networks, and optical switching. Since August 1995, he has been a Professor at the School of Electrical and Computer Engineering at Cornell University. Since August 2013, he joined the Computer Science Department at The University of Texas at Dallas, where he is now a Professor and Distinguished Chair. Dr. Haas is an author of numerous technical papers and holds eighteen patents in the fields of high-speed networking, wireless networks, and optical switching. Dr. Haas is an IEEE
Dr. Latifur Khan: [http://www.utdallas.edu/~lkhan/](http://www.utdallas.edu/~lkhan/)

Latifur Khan is a Professor in the Computer Science department at The University of Texas at Dallas where he has been teaching and conducting research since September 2000. He received his Ph.D. and M.S. degrees in Computer Science from the University of Southern California in August of 2000, and December of 1996 respectively. He has received prestigious awards including the IEEE Technical Achievement Award for Intelligence and Security Informatics. He has given several keynote addresses including at the IEEE International Conference on Tools with Artificial Intelligence ICTAI 2010 in Arras, France; Third IEEE ICDM International Workshop on Semantic Aspects in Data Mining SADM 2010, Sydney, Australia; IEEE International Conference on Sensor Networks, Ubiquitous, and Trustworthy Computing 2010, Newport Beach, California; and Pacific Asia Knowledge Discovery in Databases 2012 in Kuala Lumpur Malaysia. Professor Latifur Khan is currently supported by grants from NASA, the National Science Foundation (NSF), Air Force Office of Scientific Research (AFOSR), DOE (via Sandia Lab), Raytheon, NGA, IARPA, Nokia Research Center, Alcatel, Tektronix, and the SUN academic equipment grant program. Dr. Khan's research areas cover data mining and big data analytics with applications in cyber security. Dr. Khan has published over 170 papers in 40 journals, in peer reviewed conference proceedings, and two books. Dr. Khan is an ACM Distinguished Scientist and a Senior Member of IEEE. He is an associate editor on multiple editorial boards including IEEE Transactions on Knowledge and Data Engineering (TKDE).

6. Sample research grants we have obtained over the past 3 years

“Capacity Building for Assured Cloud Computing”
Bhavani Thuraisingham, PI, Murat Kantarcioglu, Latifur Khan, Kevin Hamlen, co-PIs

“Semantic Approach to Behavior based IDS and Its Applications”
Bhavani Thuraisingham, PI, Latifur Khan, Kevin Hamlen, Zhiqiang Lin, co-PIs

“A Framework for Managing the Assured Information Sharing Lifecycle”
Bhavani Thuraisingham, PI, Murat Kantarcioglu co-PI
AFOSR 09.01.07-07.30.13, $1,000,000

“Secure Semantic Service Oriented Information Grid for NCES and Border Security Applications”
Bhavani Thuraisingham, PI, Murat Kantarcioglu, co-PI
AFOSR 05.01.2008-04.30.12, $2,271,640

“Career: An integrated approach for efficient privacy preserving distributed data analytics”
Murat Kantarcioglu, PI
National Science Foundation 01.01.2009-12.31.2014, $400,000

“Technologies to Enable Privacy in Biobanks”
Murat Kantarcioglu, PI (subcontracted from Vanderbilt University)
NIH 07.01.2009 – 06.30.2013, $360,000 (UT Dallas portion)

“A Systematic Defense Framework for Combating Botnets”
Murat Kantarcioglu, PI, Alain Bensoussan, co-PI
ONR, (subcontracted from Purdue University) 06.01.2009-05.30.2014, $60,000

“NeTS: Medium: Collaborative Research: A Comprehensive Approach for Data Quality Provenance in Sensor Networks”
Murat Kantarcioglu, PI
NSF 05.01.2010-04.30.2013, $150,000

“TC:Small:Collaborative:Protocols for Privacy-Preserving Scalable Record Matching and Ontology Alignment”
Murat Kantarcioglu, PI, Latifur Khan, Bhavani Thuraisingham, co-PI’s
NSF 08.01.2010-07.31.2013, $259,674

“TC: Large: Collaborative Research: Privacy-Enhanced Secure Data Provenance”
Murat Kantarcioglu, PI, B. Thuraisingham, Alain Bensoussan, co-PI’s
08.25.2011-08.24.2016, $912,068

“A Game Theoretic Framework for Adversarial Classification”
Murat Kantarcioglu, PI, B. Thuraisingham, Nathan Berg, co-PI’s
Army Research Office 09/01/2012-08/31/2015, $400,000

“Ecologically Inspired Framework for Assured Information Cloud”
Murat Kantarcioglu, PI, B. Thuraisingham, Alain Bensoussan, co-PI’s
AFOSR, 04/01/2012-03/31/2015, $360,000

“TWC: Medium: Collaborative: Policy Compliant Integration of Linked Data”
Murat Kantarcioglu, PI, Kevin Hamlen, Latifur Khan co-PI’s
NSF 9/1/2012 – 8/31/2015, $399,897

“A Risk Management Framework for Identifiability in Genomics Research”
Murat Kantarcioglu, PI
NIH (Subcontract from Vanderbilt Univ) 07/01/2012-06/30/2016, $300,000

“Binary Retrofitting of Untrusted Software Components for Secure Software Complexity Reduction”
Kevin Hamlen, PI
Office of Naval Research (ONR) 11/1/13–10/31/16, $593K

“Metamorphic Extensions to Frankenstein Malware for Defensive Testing”
Kevin Hamlen, PI, Latifur Khan, Zhiqiang Lin, co-PI’s
Raytheon Company (IUCRC Project) 8/12/13–8/11/14, $35K

“TC: Medium: Collaborative Research: Securing Web Advertisements: Fixing the Short-term Crisis and Addressing Long-term Challenges”
Kevin Hamlen, PI
National Science Foundation (NSF) 9/1/11–8/31/14, $1.2M total ($527K for UTD)

“CAREER: Language-based Security for Polymorphic Malware Protection”
Kevin Hamlen, PI
National Science Foundation (NSF) 8/1/11–7/31/16, $504K
Zhiqiang Lin, PI
DARPA (subcontracted from Purdue University). 12/01/2011-11/30/2014, $475,000

"Vulcan: Automatically Generating Tools for Virtual Machine Inspection from Legacy Binary Code"
Zhiqiang Lin, PI
VMWare $68K. 10/1/2012-9/30/2013

Zhiqiang Lin, AFOSR YIP Award Announcement January, 27, 2014.


“MRI: Development of an Instrument for Assured Cloud Computing”
Latifur Khan, PI, Murat Kantarcioglu, Kevin Hamlen, co-PI’s
NSF 10/01/2012-09/30/2015, $300,000

“Situational Awareness of Topic Drift and Birth-Death in Cyber,”
Latifur Khan, PI
Department of Energy (subcontract from SANDIA) 170K, 09/01/2012—08/30/2015

“ATD: Efficient online detection based on multiple sensors, with applications to cybersecurity and discovery of biological threats,”
Michael Baron, PI, Latifur Khan, co-PI
NSF 10/01/2013—09/30/2016 $392,502


“Federal Cyber Service: Scholarship for Service Program in UT Dallas” (Student travel grants for TexSAW 2012 event), NSF, $10,000, 2012.


“Federal Cyber Service: Scholarship for Service Program in UT Dallas” (Student travel grants for TexSAW 2011 event), NSF, $10,000, 2011.

“Federal Cyber Service: Scholarship for Service Program in UT Dallas”
Dr. Kamil Sarac, PI, Drs. Thuraisingham, Sha, Hamlen, and Kantarcioglu, co-PI’s
NSF, $1.8M, 2010-2014.

“Gift to Support Research in Information-Rich Sample Selection”
Y. Makris, PI
Intel Corp. 11/01/13-10/31/14, $30K
Y. Jin, PI, Y. Makris, co-PI
NSF 1311860, NSF 1319105 10/01/13-09/30/16, $460,000

“Process Variation Anatomy: A Statistical Nexus between Design, Manufacturing, and Yield”
Y. Makris, PI
SRC / TxACE 08/01/13-07/31/16, $330K

“Cross-Layer Intelligent System-Based Adaptive Power Conditioning for Robust and Reliable Mixed-Signal Multi-Core SoCs”
Y. Makris, PI, D. Ma, co-PI
NSF 1255754, SRC 2413.001, 04/01/13-03/31/16, $320K

“Trusted Module Acquisition Through Proof-Carrying Hardware IP”
Y. Makris, PI
ARO CS 60709, 02/01/12-01/31/15, $330K

“THWART: Trojan Hardware in Wireless ICs: Analysis and Remedies for Trust”
Y. Makris, PI
NSF 1017719, NSF 1149465, 09/01/10-08/31/14, $500K

7. PhD Students Graduated from CSI and Positions (Students of the Core Faculty)

2005-2007
1. Mamoun Awad, 2005, University of UAE
2. Lei Wang, 2006, Microsoft
3. Manghui Tu, 2006, Purdue University, Calimet

2008-2014
1. Li Liu, 2008, Ebay
2. Ryan Layfield, 2008, Cisco
4. Mehedy Masud, 2009, University of UAE
5. Hai Vu, 2009, Cisco
6. Zhong Wang, 2010 Financial Services, Shanghai
7. Mustafa Canim, 2010, IBM Watson Research Center
8. Ali Inan, 2011, Isik University, Turkey
9. Wei-She, 2011, Intel
10. Tyrone Cadenhead, 2011, Blue Cross Blue Shield
11. Micah Jones, 2011, L3 Communications
12. Jeffrey Partyka, 2011, Raytheon
13. Farhan Husain, 2011, Amazon
15. Sunitha Ramanujan, 2011, Startup company, TX
16. Raymond Heatherly, 2011, Vanderbilt University
17. James McGlothlin, 2011, Fusion Consulting TX
Current PhD Students of the Core Faculty

Data Security and Privacy

- Erman Pattuk
- Jyothsna Rachapalli
- Fahad Shaon
- Huseyin Ulusoy
- Harichandan Roy
- Lidan Fan

Programming Language and Software Security

- Frederico Araujo
- Gilmore Lundquist
- Vishwath Mohan
- Meera Sridhar
- Wenhao Wang

Systems Security and Malware Analysis

- Yangchun Fu
- Yufei Gu
- Junyuan Zeng
- Yafeng Lu
- Husheng Zhou

Control Systems Security and Critical Infrastructure Protection

- Junia Valente
- Mustafa Faisal
- Carlos Barreto
- David Urbina

Cryptography

- Vipin Singh Sehrawat

Big Data Analytics for Security
8. Our Approach to Graduate Education

To become a Ph.D. candidate in computer science at UT Dallas a student must demonstrate that they have an equivalent of a UT Dallas MS CS degree. The MS CS degree at UT Dallas requires that students take 33 credit hours, which translate to eleven 3-credit graduate courses. These eleven graduate courses must include five courses from one of the six concentrations: traditional computer science, network and telecommunications, computer systems, data science, intelligent systems, and information assurance/cyber security. A majority of the Ph.D. students obtain the equivalent of the MS degree at UT Dallas. Some who already have an MS degree must show that graduate courses taken outside of UT Dallas indeed map to the graduate courses at UT Dallas for one of the concentrations.

Students conducting research in the cybersecurity domain typically take classes from the information assurance/cyber security track and often complete the course requirements of this track (see http://cs.utdallas.edu/graduate/documents/IA-flyer.pdf for details of the course requirements of information assurance concentration track). The information assurance track requires that students take the following 3 courses:

1. CS 6363 Design and Analysis of Computer Algorithms
2. CS 6378 Advanced Operating Systems
3. CS 6324 Information Security
Plus two of the following four courses:
1. CS 6377 Introduction to Cryptography
2. CS 6348 Data and Application Security
3. CS 6349 Network Security
4. CS 6301 System Security and Malicious Code Analysis

In fact, most graduate students are recruited by the cybersecurity faculty members through their graduate level cybersecurity course offerings. Motivated students performing well in those classes establish a research relationship with the faculty which often results in PhD dissertation research work. The department offers more than a dozen graduate courses in the area of information assurance/cyber security. In addition to the required core courses listed above that are typically offered every semester, 8 to 10 electives courses are offered each year in the area of cyber security. For example, the following cyber security related elective courses were offered in the last 1 year. Together these elective courses had a total enrollment of over 300 students.

1. CS 6301-001 Security of Critical Infrastructure
2. CS 6301-002 Cyber Security Essentials
3. CS 6301-003 Analyzing and Securing Social Networks
4. CS 6301-004 Developing and Securing the Cloud
5. CS 6301-005 Secure Cloud Computing
6. CS 6301-006 Language Based Security
7. CS 7301-001 Operating System Security
8. CS 7301-002 Information Theoretic Cryptography
9. CE 7v80-001 Trusted and Secure Integrated Circuits and Systems

10. Please visit the following links for more details of CSI:

(i) Faculty and the courses (http://csi.utdallas.edu/FacultyCourses.pdf)

(ii) Faculty research (papers, books, talks) (http://csi.utdallas.edu/FacultyResearch.pdf)

(iii) Student research (http://csi.utdallas.edu/StudentResearch.pdf)

(iv) Interdisciplinary education and research (http://csi.utdallas.edu/Interdisciplinary_education_research.pdf)

(v) Collaboration and outreach (http://csi.utdallas.edu/Collaboration_outreach.pdf)