FRANK BREITINGER (PHD)

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EDUCATION

PhD - Computer Sciences March 2011 - June 2014
Technical University Darmstadt

· Emphasis on Cyber Forensics and Cybersecurity.
· Member of da/sec - biometrics and internet-security research group.
· Member of Center for Advanced Security Research Darmstadt (CASED).

MSc. - Computer Sciences March 2009 - February 2011
University of Applied Sciences Darmstadt

· Emphasis on Cyber Forensics and Cybersecurity.

BSc. - Computer Sciences October 2005 - February 2009
University of Applied Sciences Mannheim

· Emphasis on Software Development.
· Practical semester at the University of Maryland (USA). Sept. 2007 to Mar. 2008.
· Thesis at sobedi GmbH Mannheim with a focus on software development. Aug. 2008 to Feb. 2009.

WORK EXPERIENCE

University of New Haven September 2014 - present
Assistant Professor (Tenure Track) *West Haven, CT*

· Teaching multiple course in Cybersecurity and Cyber Forensics.
· Co-Director of the Cyber Forensics Research and Education Laboratory.
· Applying to various research funding agencies.

University of Applied Sciences Darmstadt March 2011 - March 2014
Research Assistant *Darmstadt, Germany*

· Cybersecurity and Cyber Forensics.
· Sponsored by the FIDELITY Grant - Working on the indexing problem of similarity digests (a.k.a. fingerprints) for the European passport.
· Developed the Standard for Approximate matching at the National Institute of Standards and Technology (NIST) (Gaithersburg, MD, USA). Oct. 2013 to Dec. 2013.

IT-fuer-jedermann.de September 2009 - August 2014
Self-Employed *Beerfelden, Germany*

· Security assessment and maintenance of the IT-Infrastructure for companies.
· Webdesign, Internet/Network, Consultation, Education and Sale.
· Designed an implemented several web pages based on Wordpress and PHP.

DEVELOPMENT AND OTHER ACTIVITIES*

1. 2017: **Research Fellowship** (two weeks) at Brno university of technology with the NES@FIT - Networked and embedded systems research group. Supported researchers on various projects as well as gave presentations.

2. 2017: Helped organizing the **National Workshop on Redefining Cyber Forensics** (NWRCF, two days) in Hartford (CT) which was NSF sponsored. A blue-ribbon panel to stimulate the needed intellectual exchange of ideas and discussions on the future of cyber forensics.

3. 2016: **Master Teacher Seminar** (two days) with Dr. Harvey Brightman, sponsored by the College of Business at the University of New Haven.

4. 2016: **KEEN ICE Workshop** (three days) featuring activities and presentations covering the important aspects of Entrepreneurially Minded Learning (EML), Active and Collaborative Learning (ACL), and Problem/Project Based Learning (PBL) and how to integrate them into your own courses. Details here.

*Some selected activities.

AWARDS & HONORS

1. 2017: University Research Scholar – (the scholar receives a partial teaching workload release for 3 academic years + a modest budget).

2. 2017: Best Paper award for the paper: Expediting MRSH-v2 Approximate Matching with Hierarchical Bloom Filter Trees at the International Conference on Digital Forensics and Cyber Crime, Prague, CZ.

3. 2016: Merit Award – University of New Haven (in recognition of individual strong performance, and support of students in experiential education opportunities, as well as to acknowledge the overall contribution).

4. 2015: FBTI Award of Excellence – Fachbereichstag Informatik for my dissertation in Computer Science at a German Universities of Applied Science.

5. 2015: Best Paper award for the paper: How Cuckoo Filter Can Improve Existing Approximate Matching Techniques at the International Conference on Digital Forensics and Cyber Crime, Seoul, Korea.

6. 2015: Siew-Sngiem Best Poster Award: Towards Bloom Filter-based Indexing of Iris Biometric Data at the International Conference on Biometrics, Phuket, Thailand.

7. 2014: Best paper award for the paper: File Detection On Network Traffic Using Approximate Matching at the International Conference on Digital Forensics and Cyber Crime, New Haven, CT.

8. 2013: Best paper award for the paper: Evaluating Detection Error Trade-offs for Bytewise Approximate Matching Algorithms at the International Conference on Digital Forensics and Cyber Crime, Moscow, Russia.

FUNDING

1. 2018: Source: University of New Haven, Title: Cryptowallet Application Analysis, PI: Frank Breitinger, Amount: $3,250 – funded.

2. 2018: Source NSA / NSF, Title: University of New Havens Cyber Agent Academy, PI: Ibrahim Baggili, Co-PIs: Frank Breitinger, Liberty Page, Amount: $64,099 – funded.

3. 2017: Source: Davis Educational Foundation, Title: Development of the 'CyberWorld' Common Course at the University of New Haven, PI: Frank Breitinger, Co-PIs: Kristen Przyborski, Ronald Harichandran, Ibrahim Baggili, Guy-Serge Emmanuel, Glenn McGee, Christy Smith, Matthew Schmidt, Amount $167,418 – funded.

4. 2017: Source: NSF, Title: Exploring cybersecurity & forensics of Virtual Reality systems and their impact on cybersecurity education, PI: Ibrahim Baggili, Co-PI: Frank Breitinger, Amount $179,409 – funded.

5. 2017: Source: University of New Haven, Title: Availability of Datasets for digital forensics - and what is missing, PI: Frank Breitinger, Amount: $3,250 – funded.
6. 2017: Source NSA / NSF, Title: University of New Havens Cyber Agent Academy, PI: Ibrahim Baggili, Co-PIs: Frank Breitinger, Liberty Page, Amount: $53,029 – funded.
7. 2016: Source: NSF, Title: National Workshop on Redefining Cyber Forensics (NWRCF), PI: Ibrahim Baggili, Co-PI: Frank Breitinger, Amount: $49,995 – funded.
8. 2016: Source: University of New Haven, Title: A survey to enhance adult education in cyber security, PI: Frank Breitinger, Amount: $3,250 – funded.
9. 2014: Source: Purdue University sub-award through Department of Homeland Security, Title: Artifact Genome Project, PI: Ibrahim Baggili, Co-PIs: Frank Breitinger, Ted Markowitz, Amount: $140,000 – funded.

PUBLICATIONS & PRESENTATIONS

Books

1. Joshua I. James and Frank Breitinger, eds. *Digital Forensics and Cyber Crime - 7th International Conference, ICDF2C 2015, Seoul, South Korea, October 6-8, 2015, Revised Selected Papers*. Vol. 157. Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering. Springer, 2015. ISBN: 978-3-319-25511-8.

Book Chapters

1. Joseph Ricci, Ibrahim Baggili, and Frank Breitinger. "Watch What You Wear: Smartwatches and Sluggish Security". In: *Managing Security Issues and the Hidden Dangers of Wearable Technologies*. Ed. by Andrew Marrington, Don Kerr, and John Gammack. IGI Global, 2016, p. 47.

Journal Articles (peer-reviewed)

1. Joseph Ricci, Frank Breitinger, and Ibrahim Baggili. "Survey results on adults and cybersecurity education". *Education and Information Technologies* (July 2018), pp. 1–19. ISSN: 1360-2357.
2. Devon R. Clark, Christopher Meffert, Ibrahim Baggili, and Frank Breitinger. "DROP (DRone Open source Parser) your drone: Forensic analysis of the DJI Phantom III". *Digital Investigation* 22, Supplement (2017), S3 –S14. ISSN: 1742-2876.
3. George Denton, Filip Karpisek, Frank Breitinger, and Ibrahim Baggili. "Leveraging the SRTP protocol for over-the-network memory acquisition of a GE Fanuc Series 90-30". *Digital Investigation* 22, Supplement (2017), S26 –S38. ISSN: 1742-2876.
4. Cinthya Grajeda, Frank Breitinger, and Ibrahim Baggili. "Availability of datasets for digital forensics – And what is missing". *Digital Investigation* 22, Supplement (2017), S94 –S105. ISSN: 1742-2876.
5. Jason Moore, Ibrahim Baggili, and Frank Breitinger. "Find Me If You Can: Mobile GPS Mapping Applications Forensics Analysis & SNAVP The Open Source, Modular, Extensible Parser". *Journal of Digital Forensics, Security and Law (JDFSL)* 12.1 (2017), p. 7.
6. Xiaolu Zhang, Ibrahim Baggili, and Frank Breitinger. "Breaking into the vault: privacy, security and forensic analysis of android vault applications". *Computers & Security* 70 (2017), pp. 516 –531. ISSN: 0167-4048.
7. Samer Al-khateeb, Kevin J. Conlan, Nitin Agarwal, Ibrahim Baggili, and Frank Breitinger. "Exploring Deviant Hacker Networks (DHN) On Social Media Platforms". *Journal of Digital Forensics, Security and Law* 11.2 (2016), pp. 7–20.

8. Vikram S. Harichandran, Frank Breitinger, and Ibrahim Baggili. "Bytewise Approximate Matching: The Good, The Bad, and The Unknown". *Journal of Digital Forensics, Security and Law* 11.2 (2016), pp. 59–78.

9. Vikram S. Harichandran, Frank Breitinger, Ibrahim Baggili, and Andrew Marrington. "A cyber forensics needs analysis survey: Revisiting the domain's needs a decade later". *Computers & Security* 57 (2016), pp. 1–13. ISSN: 0167-4048.

10. Vikram S. Harichandran, Daniel Walnycky, Ibrahim Baggili, and Frank Breitinger. "CuFA: A more formal definition for digital forensic artifacts". *Digital Investigation* 18 (2016), S125–S137.

11. Doowon Jeong, Frank Breitinger, Hari Kang, and Sangjin Lee. "Towards Syntactic Approximate Matching-A Pre-Processing Experiment". *The Journal of Digital Forensics, Security and Law: JDFSL* 11.2 (2016), pp. 97–110.

12. Conlan Kevin, Ibrahim Baggili, and Frank Breitinger. "Anti-forensics: Furthering digital forensic science through a new extended, granular taxonomy". *Digital Investigation* 18 (2016), S66–S75.

13. Christopher S Meffert, Ibrahim Baggili, and Frank Breitinger. "Deleting collected digital evidence by exploiting a widely adopted hardware write blocker". *Digital Investigation* 18 (2016), S87–S96.

14. Xiaolu Zhang, Frank Breitinger, and Ibrahim Baggili. "Rapid Android Parser for Investigating DEX files (RAPID)". *Digital Investigation* 17 (2016), pp. 28–39. ISSN: 1742-2876.

15. Filip Karpisek, Ibrahim Baggili, and Frank Breitinger. "WhatsApp network forensics: Decrypting and understanding the WhatsApp call signaling messages". *Digital Investigation* 15 (2015), pp. 110–118. ISSN: 1742-2876.

16. Daniel Walnycky, Ibrahim Baggili, Andrew Marrington, Jason Moore, and Frank Breitinger. "Network and device forensic analysis of Android social-messaging applications". *Digital Investigation* 14, Supplement 1 (2015). The Proceedings of the Fifteenth Annual DFRWS Conference, pp. 77–84. ISSN: 1742-2876.

17. Frank Breitinger and Ibrahim Baggili. "File Detection On Network Traffic Using Approximate Matching". *Journal of Digital Forensics, Security and Law (JDFSL)* 9.2 (2014), pp. 23–36.

18. Frank Breitinger, Harald Baier, and Douglas White. "On the database lookup problem of approximate matching". *Digital Investigation* 11, Supplement 1.0 (2014). Proceedings of the First Annual DFRWS Europe, S1–S9. ISSN: 1742-2876.

19. Frank Breitinger, Christian Rathgeb, and Harald Baier. "An Efficient Similarity Digests Database Lookup - A Logarithmic Divide & Conquer Approach". *Journal of Digital Forensics, Security and Law (JDFSL)* 9.2 (2014), pp. 155–166.

20. Frank Breitinger and Vassil Roussev. "Automated evaluation of approximate matching algorithms on real data". *Digital Investigation* 11, Supplement 1.0 (2014). Proceedings of the First Annual DFRWS Europe, S10 –S17. ISSN: 1742-2876.

21. Frank Breitinger, Georgios Stivaktakis, and Vassil Roussev. "Evaluating Detection Error Tradeoffs for Bytewise Approximate Matching Algorithms". *Digital Investigation* 11.2 (2014), pp. 81–89. ISSN: 1742-2876.

22. Christian Rathgeb, Frank Breitinger, Christoph Busch, and Harald Baier. "On application of bloom filters to iris biometrics". *Biometrics, IET* 3.4 (2014), pp. 207–218. ISSN: 2047-4938.

23. Frank Breitinger, Georgios Stivaktakis, and Harald Baier. "FRASH: A Framework to Test Algorithms of Similarity Hashing". *Digit. Investig.* 10 (2013), S50–S58. ISSN: 1742-2876.

Conference Proceedings (peer-reviewed)

1. Brandon Knieriem, Xiaolu Zhang, Philip Levine, Frank Breitinger, and Ibrahim Baggili. "An Overview of the Usage of Default Passwords". In: *9th EAI International Conference on Digital Forensics and Cybercrime (ICDF2C)*. Springer Berlin Heidelberg, 2017, pp. 197–203.

2. David Lillis, Frank Breitinger, and Mark Scanlon. "Expediting MRSH-v2 Approximate Matching with Hierarchical Bloom Filter Trees". In: *9th EAI International Conference on Digital Forensics and Cybercrime (ICDF2C)*. **Best Paper Award**. Springer Berlin Heidelberg, 2017, pp. 144–157.

3. Christopher Meffert, Devon Clark, Ibrahim Baggili, and Frank Breitinger. "Forensic State Acquisition from Internet of Things (FSAIoT): A general framework and practical approach for IoT forensics through IoT device state acquisition". In: *Proceedings of the 12th International Conference on Availability, Reliability and Security*. ACM. 2017, p. 56.

4. Ibrahim Baggili and Frank Breitinger. "Data Sources for Advancing Cyber Forensics: What the Social World Has to Offer". In: *AAAI Spring Symposium Series*. 2015.

5. Ibrahim Baggili, Jeff Oduru, Kyle Anthony, Frank Breitinger, and Glenn McGee. "Watch What You Wear: Preliminary Forensic Analysis of Smart Watches". In: *Availability, Reliability and Security (ARES), 2015 10th International Conference on*. 2015, pp. 303–311.

6. Vikas Gupta and Frank Breitinger. "How Cuckoo Filter Can Improve Existing Approximate Matching Techniques". English. In: *Digital Forensics and Cyber Crime*. Ed. by JoshuaI. James and Frank Breitinger. Vol. 157. Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering. **Best Paper Award**. Springer International Publishing, 2015, pp. 39–52. ISBN: 978-3-319-25511-8.

7. Christian Rathgeb, Frank Breitinger, Harald Baier, and Christoph Busch. "Towards Bloom filter-based indexing of iris biometric data". In: *Biometrics (ICB), 2015 International Conference on*. **Siew-Sngiem Best Poster Award**. 2015, pp. 422–429.

8. Gurjar Satyendra, Ibrahim Baggili, Frank Breitinger, and Alice Fischer. "An empirical comparison of widely adopted hash functions in digital forensics: does the programming language and operating system make a difference?" In: *Proceedings of the Conference on Digital Forensics, Security and Law*. 2015, pp. 57–68.

9. Frank Breitinger, Christian Winter, York Yannikos, Tobias Fink, and Michael Seefried. "Using Approximate Matching to Reduce the Volume of Digital Data". English. In: *Advances in Digital Forensics X*. Ed. by Gilbert Peterson and Sujeet Shenoi. Vol. 433. IFIP Advances in Information and Communication Technology. Springer Berlin Heidelberg, 2014, pp. 149–163. ISBN: 978-3-662-44951-6.

10. Frank Breitinger, Georg Ziroff, Steffen Lange, and Harald Baier. "Similarity Hashing Based on Levenshtein Distances". English. In: *Advances in Digital Forensics X*. Ed. by Gilbert Peterson and Sujeet Shenoi. Vol. 433. IFIP Advances in Information and Communication Technology. Springer Berlin Heidelberg, 2014, pp. 133–147. ISBN: 978-3-662-44951-6.

11. Frank Breitinger et al. "Towards a Process Model for Hash Functions in Digital Forensics". English. In: *Digital Forensics and Cyber Crime*. Ed. by Pavel Gladyshev, Andrew Marrington, and Ibrahim Baggili. Vol. 132. Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering. Springer International Publishing, 2014, pp. 170–186. ISBN: 978-3-319-14288-3.

12. Frank Breitinger, Knut Astebøl, Harald Baier, and Christoph Busch. "mvHash-B - A New Approach for Similarity Preserving Hashing". In: *IT Security Incident Management and IT Forensics (IMF), 2013 Seventh International Conference on*. 2013, pp. 33–44.

13. Frank Breitinger and Harald Baier. "Similarity Preserving Hashing: Eligible Properties and a New Algorithm MRSH-v2". English. In: *Digital Forensics and Cyber Crime*. Ed. by Marcus Rogers and KathrynC. Seigfried-Spellar. Vol. 114. Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering. Springer Berlin Heidelberg, 2013, pp. 167–182. ISBN: 978-3-642-39890-2.

14. Frank Breitinger and Kaloyan Petrov. "Reducing the Time Required for Hashing Operations". English. In: *Advances in Digital Forensics IX*. Ed. by Gilbert Peterson and Sujeet Shenoi. Vol. 410. IFIP Advances in Information and Communication Technology. Springer Berlin Heidelberg, 2013, pp. 101–117. ISBN: 978-3-642-41147-2.

15. Christian Rathgeb, Frank Breitinger, and Christoph Busch. "Alignment-free cancelable iris biometric templates based on adaptive bloom filters". In: *Biometrics (ICB), 2013 International Conference on*. 2013, pp. 1–8.

16. Frank Breitinger and Harald Baier. "A fuzzy hashing approach based on random sequences and hamming distance". In: *Proceedings of the Conference on Digital Forensics, Security and Law*. 2012, pp. 89–100.

17. Frank Breitinger and Harald Baier. "Performance Issues About Context-Triggered Piecewise Hashing". English. In: *Digital Forensics and Cyber Crime*. Ed. by Pavel Gladyshev and MarcusK. Rogers. Vol. 88. Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering. Springer Berlin Heidelberg, 2012, pp. 141–155. ISBN: 978-3-642-35514-1.

18. Frank Breitinger and Harald Baier. "Properties of a similarity preserving hash function and their realization in sdhash". In: *Information Security for South Africa (ISSA)*. 2012, pp. 1–8.

19. Frank Breitinger, Harald Baier, and Jesse Beckingham. "Security and implementation analysis of the similarity digest sdhash". In: *First International Baltic Conference on Network Security & Forensics (NeSeFo)*. 2012.

20. Harald Baier and Frank Breitinger. "Security Aspects of Piecewise Hashing in Computer Forensics". In: *IT Security Incident Management and IT Forensics (IMF), 2011 Sixth International Conference on*. 2011, pp. 21–36.

21. Frank Breitinger and Claudia Nickel. "User Survey on Phone Security and Usage". In: *BIOSIG*. Ed. by Arslan Brömme and Christoph Busch. Vol. 164. LNI. GI, 2010, pp. 139–144. ISBN: 978-3-88579-258-1.

Other major Publications

1. Frank Breitinger. "On the utility of bytewise approximate matching in computer science with a special focus on digital forensics investigations". PhD thesis. Technical University Darmstadt, 2014.

2. Frank Breitinger, Barbara Guttman, Michael McCarrin, Vassil Roussev, and Douglas White. *Approximate Matching: Definition and Terminology*. Special Publication 800-168. National Institute of Standards and Technologies, 2014.

3. Frank Breitinger. "Security Aspects of fuzzy hashing". MA thesis. University of Applied Sciences Darmstadt, 2011.

Presentations and Invited Talks

*This section does not include conference presentations.

1. Frank Breitinger. *State-of-the-art in Cyber Forensics: Now & Tomorrow*. Presentation at KAIST (Daejeon, South Koreo). 2017.

2. Frank Breitinger and Ibrahim Baggili. *Mixed topics including IoT, Drones, Similarity matching, mobile applications and PLCs*. Five Presentations at National Training on Crime Scene Management in cases of terrorism related offences, including the use of internet for terrorist purposes, cyber offences and digital evidence organized by **United Nations Office on Drugs and Crime (UNODC)**. 2017.
3. Frank Breitinger. *Reducing data for forensic investigations using approximate matching*. Presentation at University New Haven. February. 2014.
4. Frank Breitinger. *Similarity Preserving Hashing*. Presentation at 8. GI SIG SIDAR Graduate Workshop on Reactive Security (SPRING). 2013.
5. Barbara Guttman, Frank Breitinger, Simson Garfinkel, Jesse Kornblum, and Clay Shields. *Approximate Matching of Digital Artifacts*. Panel discussion at 13th Digital Forensics Research Conference (DFRWS13). 2013.
6. Frank Breitinger. *Similarity Preserving Hashing*. Presentation at CAST Workshop - Forensik und Internetkriminalitaet. 2012.
7. Frank Breitinger and Harald Baier. *Security Aspects of Piecewise Hashing in Computer Forensics*. Abstract and Presentation at 6. GI SIG SIDAR Graduate Workshop on Reactive Security (SPRING). 2011.

SERVICE

University Service

· 2016 - today: Member of the University of New Haven Faculty Senate.
· 2017 - today: Member of the Academic Committee on Student Life.

Board Member

· 2014 - today: Journal of Digital Forensics, Security and Law (JDFSL).
· 2016 - today: Digital Investigation (DI).

General Co-Chair

· 2016: International Conference on Digital Forensics & Cyber Crime, Manhattan (NY), United States.

Technical Program Chair

· 2015: International Conference on Digital Forensics & Cyber Crime, Seoul, South Korea.
· 2014: International Conference on Digital Forensics & Cyber Crime, New Haven (CT), United States.

Program Committee Member

· 2015 - today: International Conference on Availability, Reliability and (ARES) (Workshop WSDF).
· 2015 - today: Systematic Approaches to Digital Forensic Engineering (SADFE).
· 2015 - 2017: Conference on Digital Forensics, Security and Law (ADFSL).
· 2014 - today: Digital Forensics Research Conference (DFRWS).
· 2014 - today: Digital Forensics Research Conference Europe (DFRWS EU).
· 2014 - today: International Conference on Digital Forensics (IFIP WG 11.9).
· 2013 - today: International Conference on Digital Forensics & Cyber Crime (ICDF2C).

Reviewer for Articles

· 2018: Journal of Forensic Sciences.
· 2017: IEEE Security & Privacy (magazine).

· 2017: IEEE Transactions on Information Forensics and Security.
· 2017: Indian Journal of Science and Technology.
· 2017: Journal of Information Security and Applications.
· 2017: Information Systems.
· 2016: ACM Computing Surveys.
· 2015: Digital Investigation.
· 2015: Journal of Information Technology.

Mentoring Activities

· 2012 - today: Theses, undergrad & graduate projects and internships advisor.

TEACHING EXPERIENCES

University of New Haven

· Introduction to Scripting / Python (graduate & undergraduate; upcoming semester).
· Reverse Engineering (Android / ARM) (graduate & undergraduate).
· Ethical Hacking (graduate & undergraduate).
· Topics in Cyber Security and Forensics (graduate & undergraduate).
· Introduction to Computer Security (graduate & undergraduate).
· Software Project Analysis and Design (graduate & undergraduate).
· Object oriented Design and Analysis (graduate & undergraduate).
· Senior Software Project (undergraduate).

University of Applied Sciences Darmstadt

· Selected Topics of IT-Security (graduate).
· IT-security seminar on Internet Security and Similarity Hashing (graduate).
· Theory-Seminar about Aspects of Fuzzy Hashing* (graduate) - Teaching assistant.
· Cryptography* (graduate) - Teaching assistant.
· Computer Forensics* (graduate) - Teaching assistant.

*I am more than comfortable with the material and could teach these courses without a long preparation time.

Additional

· Contributed to a 'letter of study' for an online lecture in *digital forensic*. 5 ECTS lecture for Master students including a practical (German).

STUDENTS ADVISING / HOSTED

Note, this section only lists theses but does not list any internships, senior design projects or independent studies.

Master thesis

· 2017: Vikram Harichandran - Approximate matching for Template detection.
· 2016: Lorenz Liebler - Approximate matching for malware detection in memory.
· 2015: Tobias Huppertz - Indexing similarity hashes using Bloom filters.
· 2013: Vikas Gupta - File fragment detection on network traffic using similarity hashing.
· 2013: Simon Thurner - Methods for identification of encryption data and its application in digital forensics.
· 2012: Tim Völpel - Forensic-Chatlog-Parser.
· 2012: Knut Petter Åstebøl - mvHash - a new approach for fuzzy hashing.
· 2012: Jesse Beckingham - Security analysis of sdhash.

Bachelor thesis

- 2012: Dario Cundari - Software tools for testing similarity preserving algorithms.
- 2012: Georg Ziroff - Approaches for similarity-preserving hashing.

Hosted students

- 2018: Patrick Schmitt; Technical University Darmstadt; research on master thesis (1 month).
- 2017: Dr. David Lillis; University College Dublin; research on a Fulbright scholarship (1 month).
- 2016: Lorenz Liebler; University of Applied Science Darmstadt; research on master thesis (1.5 month).

MEDIA CONTRIBUTIONS

Note, this is not a complete list but some selected contributions.

Television

- FOX61: Staying save during Christmas shopping (Live on Good morning Connecticut) (Dec. 8, 2017).
- WTNH - News8: Keeping your kids safe on social media (Aug. 8, 2017).
- WTNH - News8: Social Media Security: Beware the urge to over-share (Feb. 6, 2017).
- WTNH - News8: Study: Banks have weak password handling (Mar. 1, 2016).
- FOX-CT: FBI director: Apple encryption dispute hardest question seen in government (Feb. 25, 2016).
- CBS Chicago: Is Your Smartwatch Safe From Hackers? (Feb. 9, 2016).
- WTNH - News8: Facebook threat sends schools named 'Lincoln' on high alert, including Meriden (Jan. 26, 2016).
- WTNH - News8: Things you should NOT buy online (Dec. 16, 2015).
- WTNH - News8: How to protect your identity from being stolen this holiday season (Dec. 2, 2015).
- WTNH - News8: Experts reveal how ISIS is using the dark web to stay undetected (Nov. 19, 2015).
- Local10: Researchers on smartwatch concerns (Dec. 16, 2015).
- Local10: Watch what you wear: Smartwatches vulnerable to attack (Aug. 3, 205).
- FOX-CT: Thinking like 'bad guys to protect the interwebs (Jun. 30, 2015).

Internet / Magazines

- PR Newswire and picked up by several others: University of New Haven Hacking Team Competes Nationally After Winning Regional, Connecticut Competitions (Oct. 31, 2017).
- Hartford Courant: From Manchester Office, Digital Police Detectives Track Down Child-Porn Viewers (continued: Massachusetts Man Faces Glastonbury Voyeurism Charges (Oct. 13, 2016)).
- Bulletin of the Academy of Science and Engineering: Cybersecurity: Implications and Prevention What Can We Learn from the NIST Framework? (Sept. 1, 2016).
- Digital Guardian: Insider vs. Outsider Data Security Threats: Whats the Greater Risk? (Jul. 26, 2016).
- Company Dime: Sabres Silence On Security 'Incident' Isn't Unusual, But It's Still Making Travel Managers Nervous (Sept. 3, 2015).
- CNET: Samsung, LG smartwatches give up personal data to researchers (Jun. 10, 2015).

MORE INFORMATION

More information and auxiliary documents can be found at

- `http://www.FBreitinger.de`
- `https://www.linkedin.com/pub/frank-breitinger/87/65/496`

- http://www.unhcfreg.com