Md Lutfor Rahman

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RESEARCH INTEREST

Cybersecurity; Brain-Computer Interface; Human Factors in Cybersecurity

EDUCATION

- **University of California Riverside** — Riverside, CA
  Ph.D. Computer Science; CGPA: 3.80/4.00 — *Sep. 2016 – Summer'20 (Expected)*

- **University of Alabama at Birmingham** — Birmingham, AL
  M.Sc. Computer and Information Sciences; CGPA: 3.36/4.00 — *Aug. 2012 – Apr. 2014*

- **Bangladesh University of Engineering and Technology** — Dhaka, Bangladesh
  B.Sc. in Computer Science and Engineering; CGPA: 3.02/4.00 — *Dec. 2004 – Oct. 2009*

PUBLICATIONS

- **Md. Lutfor Rahman**, Ajaya Neupane, Sharmistha Bardhan, Evangelos E. Papalexakis, and Chengyu Song, "Phishing Detection Based on Neural Signals: An EEG Study," Under Journal Submission (Extension of ECML-PKDD paper)

- **Md. Lutfor Rahman**, Benjamin T Files, Antony D. Passaro, Peter Khooshabeh, Ashley H. Oiknine, Kimberly Pollard, Chengyu Song," CAT beats BAT: Combining Behavioral Performance and Neural Signals to Improve Adaptive Training," (On review)

- Wookhyun Han, **Md. Lutfor Rahman**, Yuxuan Chen and Chengyu Song, Byoungyoung Lee, Insik Shin, "SynFuzz: Efficient Concolic Execution via Branch Condition Synthesis," (Arxiv)

- **Md. Lutfor Rahman**, Ajaya Neupane, and Chengyu Song, "IAC: On the Feasibility of Utilizing Neural Signals for Access Control," In Proceedings of the 2018 Annual Computer Security Applications Conference (ACSAC'18), San Juan, Puerto Rico, December 2018, Acceptance rate = 20.10% (60/299)

- **Md. Lutfor Rahman***, Sharmistha Bardhan*, Ajaya Neupane, Evangelos E. Papalexakis, and Chengyu Song, "Learning Tensor-based Representations from Brain-Computer Interface Data for Cybersecurity," In Proceedings of the European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD'18), Dublin, Ireland, September 2018. Acceptance rate = 27% (39/143)(*Equal Contribution)

- Ajaya Neupane, **Md. Lutfor Rahman** , and Nitesh Saxena, "PEEP: Passively Eavesdropping Private Input via Brainwave Signals," In Proceedings of the Financial Cryptography and Data Security (FC'2017), Sliema, Malta, April 2017

- Ajaya Neupane, **Md. Lutfor Rahman** , Nitesh Saxena, and Leanne Hirshfield , "A Multi-Modal Neurophysiological Study of Phishing Detection and Malware Warnings," In Proceedings of the ACM Conference on Computer and Communications Security (CCS'2015), Denver, Colorado, USA, October 2015. Acceptance rate = 19.8% (128/646)

- Mainul Mizan, **Md Lutfor Rahman** , Rasib Khan, Munirul Haque, and Ragib Hasan, "Accountable Proof of Ownership for Data using Timing Element in Cloud Services," In Proceedings of the the 2013 International Conference on High Performance Computing and Simulation (HPCS 2013), Helsinki, Finland, July 2013

RESEARCH EXPERIENCE

- **U.S. Army Research Lab (ARL West)** — Los Angeles, CA
  Visiting Research Intern — *Summer 18, 19*
  - **Project**: Developed a neuro-adaptive training system, where training difficulty changes with the feedback from brain signals.
  - **Mentor**: Dr. Benjamin T. Files, Dr. Antony Passaro

- **University of California** — Riverside, CA
  Graduate School Fellow/GRA — *Sep 2016 - Present*
  - **Topics**: Explore computer security problems through the lens of Brain-Computer Interface.
  - **Supervisor**: Prof. Chengyu Song

- **University of Alabama at Birmingham** — Birmingham, AL
  Graduate Research Assistant SPIES LAB (http://spies.cs.uab.edu) — *Aug 2012 - Apr 2014*
  - **Project**: Privacy of BCI-Hacking pin/password using brainwaves.
  - **Supervisor**: Prof. Nitesh Saxena

Teaching Experience

- **University of California** — Riverside, CA
  Associate Instructor — *F17, W18, F19, W20*
  - **Courses**: CS 006 - World Wide Web (F17, F19), CS 100 - Software Construction (W18, W20)
- **University of Alabama at Birmingham** — Birmingham, AL
  Graduate Teaching Assistant — *Aug 2012 - Apr 2014*
  - **Courses**: Computer Security (S14), Programming Language (S13), Object Oriented Programming (F12, F13), Discrete Structures (F13, S13, S14), and Principles of Computer Science (F12)

Industry

- **Vincari LLC** — Birmingham, AL
  Software Engineer — *Jan 2016 - Aug 2016*
  - **Electronic Physician Assistant**: Developed web API for doctors' virtual assistance.
  - **Manager**: Dr. Maqbool Patel, CTO
- **Aegis Foundry LLC** — Birmingham, AL
  Lead Developer — *May 2014 - Dec 2015*
  - **SmartPOS**: Managed a development office remotely and lead several software development projects.
  - **Manager**: Brian Marvin, CEO
- **S.F Ahmed and Co** — Dhaka, Bangladesh
  Software Engineer and Consultant — *Jun 2010 - July 2012*
  - **Accounting Management System**: Developed accounting software that is used by 171 offices of Bangladesh Telecommunications Company Limited.
  - **Manager**: Prof. Ershadul H. Choudhury, Project Manager

Leadership

- **Education Foundation (http://efcharity.org/)** — Bangladesh
  Co-Founder, Chairman, and Volunteer — *Jan 2010 - Present*
  - **Education Foundation**: We arrange merit test competitions, provide scholarships, offer free classes, organize educational seminars, do humanitarian work, establish a public library and five classroom libraries for reading books. We impact approximately 20000 students from 71 schools through our several programs. Currently, we have more than 40 volunteers working at the field level. As the chairman of the Education Foundation, I am involved in planning, fundraising, and execution; I also mentor our volunteers as well as hundreds of students.
- **Dept of CS, UCR** — Riverside, CA
  Security Reading Group Organizer — *F18, W19*
  - **Security Reading Group**: We organized an internal security reading group at the Department of Computer Science at UCR. Each week, the presenter presented paper(s) from top security conferences.

Projects

- Decoding the skepticism signal for phishing detection task. (UCR)
- Website fingerprinting via neural signals. (UCR)
- IAC: On the feasibility of utilizing neural signals for access control (UCR)
- Learning tensor-based representations from neural data for cybersecurity (UCR)
- Multi-modal study of phishing detection and malware warnings. (UAB)
- Peep: Passively eavesdropping private input via brainwave signals (UAB)

Mentorship

- Dominic Ventre & Trung-Hung Pham: Controlling wheelchair using EEG signals (Senior Design project, UCR).
- Shihab Ahmed & Animesh Mitra: Actuation of prosthetic arm using BCI and myoelectric sensor (Final year thesis project, BUET).
- Mentored hundreds of students through Education Foundation.

SERVICES

- External Reviewer: ICISC13, AsiaCCS18, AsiaCCS19

AWARDS AND RECOGNITIONS

- Deans distinguished fellowship for pursuing Ph.D. in computer science at UCR.
- Travel grant for presenting paper at Financial Cryptography and Data Security '17.
- Full tuition waiver for pursuing masters in computer and information science at UAB.
- Won the third prize for our Micro-Controller Based Wireless Crane at the inter-university project show on CSE day, 2008, organized by the department of computer science at BUET.

MEDIA COVERAGE

Our researches have been covered by more than 600 web portals in several languages worldwide including Chinese, Russian, Italian, Dutch, French. More links can be found on my webpage.

- Study finds hackers could use brainwaves to steal passwords Phys.org
- Using Brainwaves to Guess Passwords, MIT Technology Review
- Better understanding of how computer users detect malware and phishing attacks, Homeland Security News Wire