

GAUTAM SRIVASTAVA

Associate Professor

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RESEARCH INTERESTS

Big Data, Data Mining, Social Networks, Cryptography, Security and Privacy, and Graphs

EDUCATION

Ph.D., Computer Science

Conferred: May 2012

Thesis: **Social Network Anonymization through Graphs**

Completed: Aug 2011

Supervisors: Dr. Venkatesh Srinivasan and Dr. Bruce Kapron

University of Victoria, Victoria, British Columbia, Canada

M.Sc., Computer Science

August 2006

Thesis: **Pseudorandom number generators using multiple sources of entropy**

Supervisors: Dr. Venkatesh Srinivasan and Dr. Bruce Kapron

University of Victoria, Victoria, British Columbia, Canada

B.Sc., Mathematics and Computer Science

June 2004

Briar Cliff University, Sioux City, Iowa, USA

ACADEMIC POSITIONS

Associate Professor

January 2018-Present

Department of Mathematics & Computer Science

Brandon University (BU)

Assistant Professor

September 2014-January 2018

Department of Mathematics & Computer Science

Brandon University (BU)

Assistant Teaching Professor

September 2011-September 2014

Department of Computer Science

University of Victoria (UVic)

Faculty

September 2008-September 2010

Department of Media and Communications

University of Canada West (UCW)

PUBLICATIONS

Invited Book Chapters

1. Sean Chester, Bruce M. Kapron, Gautam Srivastava, Venkatesh Srinivasan and Alex Thomo. **Anonymization and De-Anonymization of Social Network Data**. Encyclopedia of Social Network Analysis and Mining, Volume 2, 1-9, 2018
2. Sean Chester, Bruce M. Kapron, Gautam Srivastava, Venkatesh Srinivasan and Alex Thomo. **Anonymization and De-Anonymization of Social Network Data**. Encyclopedia of Social Network Analysis and Mining, Volume 1, 48-56, 2014

Refereed Journal Publications

*Asterisk is used to identify students who are co-authors and were under my supervision

Author names alphabetical unless otherwise stated, indicating contribution amount.

3. Doug Pickering, Mykel Shumay*, and Gautam Srivastava. **Repeatable Measurement of Twitter User Impact NASA and the Great American Eclipse of 2017**. FILOMAT, Volume 4, Pages 114-125, 2018.
4. Mykel Shumay* and Gautam Srivastava. **PixSel: Images in Cryptography. An Efficient Implementation using Homophonic Substitution Ciphers**. International Journal of Electronics and Telecommunications, Volume 64, Pages 151-158, 2018.
5. Gautam Srivastava, Evan Citulsky*, Kyle Tilbury*, et al. **The Effects of Ant Colony Optimization on the Anonymization of Graphs**. Journal on Computing (JoC). 5 (1), 92-101, 2016
6. Sean Chester, Bruce M. Kapron, Gautam Srivastava and Srinivasan Venkatesh. **Complexity of Social Network Anonymization**, Social Network Analysis and Mining. 3 (2), Pages 151-166. 2013.
7. Sean Chester, Bruce M. Kapron, Ganesh Ramesh, Gautam Srivastava, Alex Thomo and Srinivasan Venkatesh. **Why Waldo Befriended the Dummy? k -Anonymization of Social Networks with Pseudo-Nodes**. Social Network Analysis and Mining. 3 (3), Pages 381-399, 2013.

Refereed Conference Publications

8. Ashutosh Dhar Dwivedi*, Rajani Singh*, and Gautam Srivastava. **PHANTOM protocol as the new Crypto-democracy**. Accepted: To Appear, *International Conference on Computer Information Systems and Industrial Management Applications (CISIM)*, 2018.

9. Rajani Singh*, Ashutosh Dhar Dwivedi*, and Gautam Srivastava. **Future of Bitcoin Mining: A Game Theoretic Approach**. Accepted: To Appear, *International Conference on Operational Research (KOI)*, 2018.
10. Ashutosh Dhar Dwivedi*, Rajani Singh*, and Gautam Srivastava. **Crypto-Democracy: a decentralized voting scheme using blockchain technology**. Proceedings of the *International Conference on Security and Cryptography (SECRYPT)*, Pages 508-513, 2018.
11. Robert Bryce and Gautam Srivastava. **The Addition of Geolocation to Sensor Networks**. Accepted: To Appear, Proceedings of the *International Conference on Software Technologies (ICSOFT)*, Pages 762-768, 2018.
12. Ashutosh Dhar Dwivedi*, Rajani Singh*, and Gautam Srivastava. **A Democratic Future using a decentralized Blockchain voting Scheme**. Accepted: To Appear, *International Central European Conference on Cryptography (CECC)*, Pages 14-18, 2018.
13. Robert Bryce, Thomas Shaw*, and Gautam Srivastava. **Adding Geolocation to the MQTT-G: A Publish/Subscribe Protocol with Geolocation**. Proceedings of the 41st IEEE International Conference on Telecommunications and Signal Processing (TSP), Pages 780-785, 2018.
14. Gautam Srivastava. **Gauging Ecliptic Sentiment**. Accepted: To Appear, Proceedings of the 41st IEEE International Conference on Telecommunications and Signal Processing (TSP), Pages 627-631, 2018.
15. Doug Pickering, Mykel Shumay*, and Gautam Srivastava. **Measuring Twitter User Influence Through A Discrete Event (NASA and the Great American Eclipse)**. Proceedings of Fuzzy Systems and Data Mining (FSDM), Pages 128-138, 2017. **Awarded Best Oral Presentation for Data Mining Session**
16. Gautam Srivastava, Mykel Shumay* and Evan Citulsky*. **Social Network Anonymity using Ant Colony Systems**. *Proceedings of the Computer Gaming and Allied Technology (CGAT)*, Pages 64-73. 2017.
17. Mykel Shumay* and Gautam Srivastava. **Images as Book Cipher Keys: An Efficient Means of Secure, Non-Deterministic Cryptography**. Proceedings of the *International Central European Conference on Cryptography (CECC)*, Pages 85-86, July 2017.
18. Ashraf Abdelbar, Gautam Srivastava and Kyle Tilbury*. **The Effects of Ant Colonization Optimization on k -Anonymization**. *Proceedings of the Geometric Function Theory and Applications (GFTA)*, Macedonia, 2015.
19. Chongjie Li, Toshiyuki Amagasa, Hiroyuki Kitagawa and Gautam Srivastava. **Label-Bag Based Graph Anonymization via Edge Addition**. *Proceedings of the International C* Conference on Computer Science & Software Engineering (C3S2E)*, Pages 95-104. 2014.
20. Sean Chester and Gautam Srivastava. **Social Network Privacy for Attribute Disclosure Attacks**. *Proceedings of the International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*, Pages 445-449. 2011.
21. Bruce M. Kapron, Gautam Srivastava and S. Venkatesh. **Social Network Anonymization via Edge Addition**. *Proceedings of the International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*, Pages 155-162. 2011.
22. Sean Chester, Bruce M. Kapron, Ganesh Ramesh. Gautam Srivastava, Alex Thomo and S. Venkatesh. **k -Anonymization of Social Networks by Vertex Addition**. *Proceedings of the 15th International Conference on Advances in Databases and Information Systems (ADBIS)*, Pages 107-116. 2011.

23. *Jennifer Murdoch, Yvonne Coady, and Gautam Srivastava. SPARCS from the University of Victoria: supporting sustainable and integrated outreach activities for educators and young minds.* In *IEEE International Conference on Meeting Demand for Engineers and Their Educators 2010-2020*, Munich, 2007.

Technical Reports

24. Doug Pickering, Mykel Shumay*, Douglas Spencer and Gautam Srivastava. **Eclipse 2017 Livestream – An Evaluation Report for NASA.** Palo Alto, CA. 2017.

TEACHING

Brandon University Courses

- 62:231:** Introduction to C++ (Course Instructor)
- 62:264:** Digital Computer Fundamentals (Course Instructor and Lab Instructor)
- 62:306:** Systems Programming (Operating Systems) (Course Instructor)
- 62:364:** Microprocessors (Course Instructor) (Spring 2018)
- 62:367:** Computer Organization (Course Instructor)
- 62:371:** Databases (Course Instructor)
- 62:483:** Senior Seminar Course on Big Data (Course Instructor)
- 62:483:** Senior Seminar Course on Social Network Privacy (Course Instructor)

University of Victoria Courses

- CSC 100:** Elementary Computing (Course Instructor)
- CSC 105:** Computers and Information Processing (Course Instructor)
- CSC 106/212:** The Practice of Computer Science (Course Instructor)
- CSC 110:** Fundamentals of Programming I (Course Instructor)
- CSC 111:** Fundamentals of Programming with Engineering Applications
- CSC 115:** Fundamentals of Programming II (Course Instructor)
- CSC 230:** Introduction to Computer Architecture (Course Instructor)
- CSC 320:** Foundations of Computer Science (Course Instructor)

BUTM 403 (UCW): Technology and the Future (Course Design and Instructor). Fall 2009, Spring 2009. This course examines the influence of the information age on daily life in organizations and homes. Concepts include the integration of digital technologies and explore phenomena like the downloading syndrome.

COURSE DESIGN

62:231 (BU): To meet requirements of the Physics exchange program with the University of Minnesota, designed, created and implemented a new course in Fundamentals of C++ programming. C++ programming is an essential tool to CSC Majors and Minors alike.

C++ is in very high demand as a programming skill in the work force and for Engineering Majors. Being able to apply C++ programming to more of an applications aspect of programming will be beneficial to our students.

62:306 (BU): Redesign of this course in Systems Programming to meet the current technology available for Operating Systems. Still touching on the history of systems programming, giving the students the tools to program and design for current Operating Systems such as Windows 7/8 and new releases of Linux. Adding in Industrial projects using active projects with Industrial Partners.

BUTM 403 (UCW): Technology and Culture and the Future: Contracted to Design and Implement this course. The course is based on technology and its effects on society. Requirements for the course is a 10 week in class module alongside 8 week online module for the same course.

CSC 106 (UVic): The Practice of Computer Science. Redesigned course in 2012. Included an aspect known as group challenges where students were required to interact with local community businesses and learn about computer science implementations that they use and do not use. This aspect of course led to a presentation at Faculty Retreat in 2013.

CSC 212 (UVic): The Practice of Computer Science. Designed and implemented a 2 week module based on my 2007 IEEE Real World Engineering Projects Award. The project was based on using Nintendo Wii-motes to create Rehabilitation Software in the aid of wrist injuries and paralysis.

INVITED LECTURES

Brandon University , Brandon, Canada Big Data and Data Mining Techniques Science Faculty Seminar Series	November 2017
Chung Yuan Christian University , Chung-Li, Taiwan <i>Hardware Cache Organization</i>	April 2017
Kaohsiung Medical University , Kaohsiung, Taiwan <i>Big Data</i>	April 2017
Shih Chien University , Kaohsiung, Taiwan <i>Data Mining and Trends in Big Data</i>	April 2017

SELECTED ACADEMIC SERVICE

Volunteer, Let's Talk Science	2018-Present
Brandon University Faculty Association – Science Representative	2018-Present
Faculty Member. Indigenous Math Outreach	2018-Present

Tour Coordinator, Western Manitoba Science Fair	2018
External Member, BU Physics Term Search Committee	2018
Member, Brandon University Dean of Science Search Committee	2016-2017
Thesis Committee Member, Brandon University MELS Program	2017-Present
Session Chair, CGAT 2018, Singapore	2017
Brandon University Senate – Science Faculty Representative	2017-Present
Member, BU Physics Search Committee	2017
BU Open House, Presentation and Science Representative	2017,2018
Technical Program Committee, (CGAT)	2017
CSC Representative, BU Coop Phase 1	2017-Present
Advisor, BU Success1 Program	2016-Present
Member, Brandon University Physics Chair Selection Committee	2015,2016
Brandon University Declare Fair	2014,2015,2016,2017
Brandon University Senate Library Committee	2015-2017
Member, BU Physical Chemistry Faculty Search Committee	2015
Member, BU Environmental Science Coordinator Search Committee	2014
Brandon Career Symposium, KeyStone Center	2015,2016,2017,2018
Brandon University Meet the Professors Day	2014,2015,2016,2017
Member, BU Research Facilitator Search Committee	2014
Member, UVic Web Development Committee	2011-2014
Member, UVic Party Planning Committee	2011-2014
Graduate Student Representative,	

UVic Computer Science Graduate Studies Committee	2008-2011
Graduate Student Representative.	
UVic Graduate Student Services Committee	2005-2009

SELECTED COMMUNITY SERVICE

Indian Pavilion Rep, WestMan MultiCultural Festival	2017-Present
National Board Member, Kangaroo Mathematics Contest	2017-Present
Co-Chair, BU Community in Action Committee	2015-Present
Legion National Track and Field Championships, Volunteer	2017
Director, Punjabi Cultural Association	2017-Present
Regional Chair, Kangaroo Mathematics Contest	2015-2017
Coldest Night of the Year, BU Fundraiser/Team Member	2017
WestMan and Area Traditional Christmas Dinner	2016, 2017
iMatter Brandon Homeless Survey	2015,2016

TRAINING of HIGHLY QUALIFIED PERSONNEL

I have supervised the following students during their topics courses, with research projects to complete degree requirements and with employment opportunities as research assistants during summer terms.

1. Kyle Tilbury, "Ant Colony Systems and Social Network Privacy", Current Grad Student at McMaster University, Summer 2015.
2. Evan Citulsky, "Ant Colony Systems and Social Network Privacy", Current Grad Student at University of Waterloo, Summer 2016.
3. Joseph Rimmer, "Sentiment Analysis", Current Fourth Year Student at Brandon University, Fall 2016.
4. Pruthvi Dhannapuneni, "Sentiment Analysis", Graduated, Employed, Fall 2016-Spring 2017.
5. Jeremy Bray, "Sentiment Analysis", Graduated, Employed, Fall 2016-Spring 2017.
6. Mykel Shumay, "Ant Colony Systems and Social Networks", "PixSel: Images as Book Ciphers", "k-Core Analysis in Data Mining", "Confidential NASA Project", Current Fourth Year Student at Brandon University, Summer 2016-Fall 2017.
7. Kyle Clarkson, "k-Core Analysis in Data Mining", Fall 2017-May 2018
8. Thomas Shaw, "Adding Geolocation to MQTT Protocol". Fall 2017-May 2018

9. Andrew Fisher, "Sensor Networks and Geolocation", Spring 2018-Present
10. Logan Praznik, "HashTag Graphs: A New Way to View Social Media Posts:", Spring 2018-Present