Safiqul Islam

Personal Data

Address:	Gaustadalléen 23 B , Oslo, Norway
Phone:	+47 22840837
Email:	safiquli@ifi.uio.no
Citizenship:	Norway and Bangladesh
Languages:	English, Norwegian and Bangla
Website:	http://heim.ifi.uio.no/~safiquli

Career Objective

To engage myself in a research oriented career to make the best use of my academic and technical skills; hence to acquire and apply my knowledge to create an impact in the research world.

Education

2017   Doctor of Philosophy
Networks and Distributed Systems Group, Department of Informatics
Univesity of Oslo , Norway
Thesis: "Lightweight and Flexible Single-Path Congestion Control Coupling"
Supervisors: Professor Michael Welzl and Professor Stein Gjessing
defense passed on 3 July 2017 at the University of Oslo
Opponents: Professor Joerg Ott and Assoc. Professor Colin Perkins

2010   Master of Science in Information and Communication Technology
Major: Internetworking
Royal Institute of Technology - KTH , Sweden
Thesis: "HTTP Video Streaming Server with Dynamic Advertisement Splicing"
Supervisors: Professor Gerald Q. Magure Chip Jr. (KTH), and Ignacio Mas (Ericsson)

Work Experience

March 2018 -	University of Oslo *Postdoctoral Fellow* Identifying and addressing exciting use cases for Machine Learning applied to networking; writing project proposals; taking undergraduate (IN3230 Computer Networks, FALL 2019), master and PhD courses (IN 5150/9150 (seminar on Recent Advancements in Internet Protocols); and supervising master students.
website	http://www.uio.no
March 2020 - April 2020	Institut Supérieur De L'aéronautique Et De L'espace and Tesa Laboratory *Visiting Researcher* Collaboration on Machine learning and Network Coding.
website	http://www.uio.no
August 2017 -	University of Oslo

February 2018	*Researcher*
	Worked towards developing TCP congestion control coupling for H2020-NEAT EU project. NEAT is a flexible service-oriented Internet transport layer API aiming to facilitate the evolution of Internet's transport layer in long-term.
website	http://www.uio.no

October 2012 - July 2017	University of Oslo *PhD Research Fellow*
	Worked on identifying and combining the congestion controllers for flows sharing a common bottleneck. In addition, I was also a teaching assistant of Introduction to Operating Systems and Data Communication course.
website	http://www.uio.no

August 2015 - August 2016	University of Oslo and Huwaei Technologies Ltd *Researcher*
	Proposed and implemented single path TCP congestion control coupling using TCP-in-UDP encapsulation at the IETF TCPM and IRTF ICCRG working groups.
website	http://www.uio.no

April 2012 - till date	Daffodil International University, Dhaka *Senior Lecturer (on study leave)*
	Teaching Computer Networks, Data Communication, Cryptography and Network Security, and Communication Engineering. Also, responsible for supervising bachelor thesis and internship.
website	http://www.daffodilvarsity.edu.bd/cse/index.php

Jan 2011 - Mar 2012	Daffodil International University, Dhaka *Lecturer*
	Teaching Computer Networks, Data Communication, Cryptography and Network Security, and Communication Engineering. Also, responsible for supervising bachelor thesis and internship.
website	http://www.daffodilvarsity.edu.bd/cse/index.php

Sep 2009 - Mar 2010	Ericsson Research, Stockholm *Master's Thesis*
	Proposed and implemented a proxy HTTP streaming server that supports dynamic advertisement splicing. Implemented using J2EE and Python.
website	http://www.ericsson.se/

Jan 2009 - Mar 2009	TSLAB at KTH, Stockholm *Project Coach*
	Worked as a project coach for a project team.
website	http://www.tslab.ssvl.kth.se/csd/projects/0911130/

Aug 2008 - Jan 2009	TSLAB at KTH, Stockholm *Network Engineer and Asst. Project Manager*
	Worked towards the consolidation of a package and a business case to implement Open Source Networking (OSN) in Africa. Applied the packages in the redesign of the network at the Dodowa Health Research Center in Africa. Designed the network topology and implemented 802.1x port based authentication and web based authentication using a single radius server. Configured all the network services(including DNS, DHCP, FTP, Nagios).Worked as a team leader for assigning tasks. Developed a Wiki for the technical tasks to convey milestones to the open source community.

website	http://www.tslab.ssvl.kth.se/csd/projects/0821116/
Mar 2007 - Aug 2007	**ReliSource Technologies Ltd, Dhaka, Bangladesh/Boston, MA, USA** *Software Quality Assurance Engineer* Used enVision tool and provide continuous and ongoing support to add and modify the logging messages generated by the vendor specific network devices. enVision is data-driven that use XML device-specific message files to describe the device log messages, and vendors issue frequent updates.
website	http://www.relisource.com
Sep 2006 - Feb 2007	**DNS Satcomm Ltd., Dhaka, Bangladesh** *NOC (Network Operation Center) Engineer* Installation and administration of Point-to-Point radio links of the POP's. Configuration and Administration of router, switch, VPN, and firewall. These tasks included: Network traffic analysis, network troubleshooting. ISP (NAT, Proxy, Web, Mail, DNS, Bandwidth Manager, DVB, MRTG) setup. Administration of servers deserved by NOC.
website	http://www.dnsgroup.com.bd

Skills

Programming Languages	C/C++ Python, TCL HTML,XHTML, WML

Publications

1. Michael Welzl, **Safiqul Islam**, Michael Gundersen, Andreas Fischer: "Transport Services: A Modern API for an Adaptive Internet Transport Layer", accepted for publication, IEEE Communications Magazine, April 2021.

2. David Hayes, Michael Welzl, Simone Ferlin, David Ros, **Safiqul Islam**: Online Identification of Groups of Flows Sharing a Network Bottleneck, IEEE/ACM Transactions on Networking, 2020

3. Michael Welzl, Peyman Teymoori, Stein Gjessing, **Safiqul Islam**: Follow the Model: How Recursive Networking Can Solve the Internet's Congestion Control Problems, IEEE ICNC 2020, Big Island, Hawaii, USA, 2020.

4. Runa Barik, Michael Welzl, Peyman Teymoori, **Safiqul Islam**, Stein Gjessing: Performance Evaluation of In-network Packet Retransmissions using Markov Chains, accepted for publication, CNC'20 workshop, in proceedings of IEEE ICNC 2020, Big Island, Hawaii, USA 2020.

5. Runa Barik, Michael Welzl, Ahmed Elmokashfi, Thomas Dreibholz, **Safiqul Islam**, Stein Gjessing: On the Utility of Unregulated IP DiffServ Code Point (DSCP) Usage by End Systems, Elsevier Performance Evaluation (PEVA), vol. 135, Elsevier, DOI 10.1016/j.peva.2019.102036, ISSN 0166-5316, August 26, 2019.

6. Michael Welzl, **Safiqul Islam** , Runa Barik, Stein Gjessing, Ahmed Mustafa Elmokashfi: Investigating the Delay Impact of the DiffServ Code Point (DSCP), IEEE ICNC 2019, Honolulu, Hawaii USA, 18-22 February 2019.

7. **Safiqul Islam** , Michael Welzl, Stein Gjessing: How to Control a TCP: Minimally-Invasive Congestion Management for Datacenters, CNC'19 workshop, IEEE ICNC 2019, Honolulu, Hawaii USA, 18-22 February 2019.

8. **Safiqul Islam**, Michael Welzl, Stein Gjessing: Lightweight and Flexible Single-Path Congestion Control Coupling, IEEE/IFIP NOMS 2018 Dissertation Session, Taipei, Taiwan,

23-27 April 2018.

9. **Safiqul Islam**, Michael Welzl, Kristian Hiorth, David Hayes, Grenville Armitage, Stein Gjessing: ctrlTCP: Reducing Latency through Coupled, Heterogeneous Multi-Flow TCP Congestion Control, IEEE INFOCOM Global Internet Symposium (GI) workshop (GI 2018), Honolulu, HI, April 2018. **Best of workshop presentation award! (given to presenter Kristian Hiorth)**

10. Runa Barik, Michael Welzl, Ahmed Mustafa Elmokashfi, Stein Gjessing, **Safiqul Islam**: fling: A Flexible Ping for Middlebox Measurements, 29th International Teletraffic Congress (ITC 29), Genoa, Italy, September 2017.

11. **Safiqul Islam**, Michael Welzl: Start Me Up: Determining and Sharing TCP's Initial Congestion Window, ACM, IRTF, ISOC Applied Networking Research Workshop 2016 (ANRW 2016), Berlin, Germany, 16 July 2016.

12. **Safiqul Islam**, Michael Welzl, Stein Gjessing, Jianjie You: OpenTCP: Combining Congestion Controls of Parallel TCP Connections, IEEE IMCEC 2016, Xi'an, China, 3-5 October 2016. **(Best Paper Award)**

13. **Safiqul Islam**, Michael Welzl, David Hayes, Naeem Khademi, Managing Real-Time Media Flows through a Flow State Exchange, IEEE NOMS 2016, Istanbul, Turkey, 25-29 April 2016.

14. **Safiqul Islam**, Michael Welzl, Stein Gjessing, Naeem Khademi: Coupled Congestion Control for WebRTC, In EuCNC Special session on latency, June/July 2015, Paris, France.

15. **Safiqul Islam**, Michael Welzl, Stein Gjessing, Naeem Khademi, Coupled Congestion Control for RTP Media, ACM SIGCOMM Capacity Sharing Workshop (CSWS 2014), 18 August 2014, Chicago, USA. **(Best Paper Award)**

16. **Safiqul Islam**, Michael Welzl, Stein Gjessing, and Naeem Khademi, Coupled congestion control for RTP media, ACM Computer Communication Review, volume 44, Issue 4, October 2014

17. **Safiqul Islam**, Michael Welzl, Stein Gjessing, One Control to Rule Them All - Coupled Congestion Control for RTP Media, Packet Video Workshop 2013, 13 December 2013, San Jose.

18. **Md. Safiqul Islam**, Syed Ashiqur Rahman, Anomaly Intrusion Detection System in Wireless Sensor Networks: Security Threats and Existing Approaches, published in International Journal of Advanced Computer Science and Technology, Korea, publisher-SERSC ISSN: 2005-4238, Vol. 36, November 2011, pp. 1-8.

19. **Md. Safiqul Islam**, Syed Ashiqur Rahman, Rezwan Ahmen, Mahmudul Hasan Raju, A Hierarchical Overlay Design for Peer to Peer and SIP Integration, published in Vol. 9, No. 6, June 2011 of the International Journal of Computer Science and Information Security (IJCSIS), USA, ISSN: 1947-5500, pp. 94-99.

20. **Md. Safiqul Islam**, Rezaul Hoque, **SIP Over Peer-to-Peer - Implications and Existing Approaches**, published in IEEE Symposium on Computer and Informatics (ISCI 2011), 20-23 March, Kuala Lumpur, Malaysia, ISBN: 978-1-61284-689-7, 2011, pp. 261-266 .

21. **Md. Safiqul Islam**, Razib Hayat Khan, D.M. Bappy, **A Hierarchical Intrusion Detection System in Wireless Sensor Networks**, published in Vol. 10, No. 08, August 2010 of the International Journal of Computer Science and Network Security (IJCSNS), Seoul, Korea, ISSN: 1738-7906, pp. 21-26.

22. Sumanta Saha, **Md. Safiqul Islam**, Md. Sakhawat Hossen, **A Novel Overlay IDS for Wireless Sensor Networks**, published in Wireless Application and Computing 2008, IADIS MCCSIS, 22-24 July, Amsterdam, The Netherland, ISBN: 978-972-8924-62-1, 2008, pp.144-148

Technical Reports

1. **Safiqul Islam**, Michael Welzl, Kristian Hiorth, David Hayes, Oystein Dale, Greville Armitage, Stein Gjessing: "Single-Path TCP Congestion Control Coupling", Technical Report 459, ISBN number 978-82-7368-424-0, UIO, 2017

2. **Safiqul Islam**, Michael Welzl, Stein Gjessing, Naeem Khademi, Coupled Congestion Control for RTP Media, Technical Report 440, ISBN number 978-82-7368-405-9, University of Oslo, 2014

3. Safiqul Islam, **An Experimental Study to Analyze the Parameters affecting Relationship between Round-Trip Time and Download Response Time for FTP Servers**, Royal Institute of Technology, KTH

4. Safiqul Islam, **BGP Security Vulnerabilities** Royal Institute of Technology, KTH

Standards contributions: RFCs, Internet-drafts

1. **Safiqul Islam**, Michael Welzl, Stein Gjessing, Coupled Congestion Control for RTP Media, Internet Engineering Task Force, RFC 8699 (Experimental), January 2020.

2. Joe Touch, Michael Welzl, **Safiqul Islam**, Jianjie You: TCP Control Block Interdependence, Internet-draft draft-ietf-tcpm-2140bis-10 (at working group last call), Mar 2021.

3. Michael Welzl, **Safiqul Islam**, Kristian Hiorth, Jianjie You: TCP-CCC: single-path TCP congestion control coupling", Internet-draft draft-welzl-tcp-ccc-0, October 2016.

4. Michael Welzl, **Safiqul Islam**, Kristian Hiorth, Jianjie You: TCP in UDP, Internet-draft draft-welzl-irtf-iccrg-tcp-in-udp-00, March 2016.

5. Michael Welzl, **Safiqul Islam**, Joe Touch, Jianjie You: "The state of implementation of TCP control block interdependence", Internet-draft draft-welzl-tcpm-tcp-sharing-00, September 2015.

Project Experiences

2016-2018	Participant of EU-Horizon 2020 "NEAT" (work packages 3 and 4)
2015-2016	Technical lead of "OpenTCP" project with Huawei, China
2012-2015	Participant of EU-FP7 "RITE" (work package 1)
2008-2009	Project leader for an open source project of Communication System Design Course KTH, towards the consolidation of a package and a business case to implement Open Source Networking (OSN), and redesign of the network at the Dodowa Health Research Center in Africa.

Scientific Review and Community Services

1. Reviewer for ACM Transactions on Multimedia Computing, Communications and Applications (TOMM), Elsevier Computer Networks; IEEE LANMAN, IFIP Networking Future of Internet workshop, ACM SIGCOMM 2017 Posters and Demos, RNDM, EPIQ, Packet Video workshop.

2. TPC member of IFIP Networking Future of Internet workshop (FIT) and International Conference on Ambient Systems, Networks and Technologies (ANT 2018).

3. Reviewer of several drafts in the IETF RMCAT WG.

Teaching

1. Fall 2020: IN 5150 (master) / IN 9150 (PhD)—Recent Advancements in Internet Protocols, Department of Informatics, University of Oslo

2. Fall 2020: IN 3230 (undergrad) / IN 4230 (master)—Computer Networks, Department of Informatics, University of Oslo

3. Fall 2019: IN 5150 (master) / IN 9150 (PhD)—Recent Advancements in Internet Protocols, Department of Informatics, University of Oslo

4. Fall 2019: IN 3230 (undergrad) / IN 4230 (master)—Computer Networks, Department of Informatics, University of Oslo

5. 2013-2016: INF1060—Introduction to Operating Systems and Data Communication, Department of Informatics, University of Oslo

6. 2011-2012: Undergraduate courses in Computer Networks, Data Communication, Discrete Mathematics, and Computer Architecture; supervised undergraduate students, Department of Computer Science and Engineering, Daffodil International University, Bangladesh

7. 2009: Project Coach for a master course project of Communication System Design course at Royal Institute of Technology (KTH), Sweden.

Supervision

PhD Theses

1. with Professor Michael Welzl and Professor Stephan Oepen: *Alina Zhiltsova—Natural Language Processing applied to Internet protocol design*

Master Theses

1. *Tobias Fladby*: Managing Real-Time Video and Data Flows with Coupled Congestion Control Mechanism

2. *Erlend Hapnes*: Can we control a TCP path?

3. with Professor Michael Welzl *Naima Noor Shorna*: On the Predicability of the Deployment of Network Mechanisms

4. with Professor Michael Welzl: *Kristian Hiorth—TCP-in-UDP: Enabling gradually deployable TCP coupled congestion control using an e   cient UDP encapsulation*

5. with Dr. Naeem Khademi: *Fredrik Haugseth—Performance Evaluation of NEAT Internet Transport Layer API and Library*

6. with Professor Michael Welzl and Runa Barik: *Lepe Khanum—A C implementation of the fling measurement tool*

Member of Master theses committee / course sensors

1. External examiner for the course Industrial Computer Communications and Network IA5218 (Fall, 2020), University of South-Eastern Norway.

2. Master thesis examiner, external (2020) - University of Stavanger

3. Internal Master thesis, Internal (2019, 2020) - University of Oslo

Talks

1. Performance Evaluation of In-network Packet Retransmissions using Markov Chains, IEEE ICNC 2020, Big Island, Hawaii, USA, 17 February 2020.

2. How to Control a TCP: Minimally-Invasive Congestion Management for Datacenters, CNC'19 workshop, IEEE ICNC 2019, Honolulu, Hawaii USA, 18 February 2019.

3. Lightweight and Flexible Single-Path Congestion Control Coupling, IEEE/IFIP NOMS 2018 Dissertation Session, Taipei, Taiwan, 26 April 2018.

4. TCB Control Block Sharing: 2140bis , 17 July 2017, TCPM, 99th IETF meeting, Prague, Czech Republic.

5. Lightweight and Flexible Single-Path Congestion Control Coupling , PhD Defense, University of Oslo, Norway, 3 July 2017.

6. Distributed Ledgers and their application to Internet Protocols PhD Defense Trial Lecture, University of Oslo, Norway,3 July 2017.

7. TCP-CCC: single-path TCP congestion control coupling (draft-welzl-tcp-ccc-00), 15 November 2016, ICCRG, 97th IETF meeting, Seoul, South Korea.

8. OpenTCP: Combining Congestion Controls of Parallel TCP Connections, IEEE IMCEC 2016, Xi'an, China, 4 October 2016. Best Presentation award

9. Start Me Up: Determining and Sharing TCP's Initial Congestion Window, ACM, IRTF, ISOC Applied Networking Research Workshop 2016 (ANRW 2016), Berlin, Germany, 16 July 2016.

10. Managing Real-Time Media Flows through a Flow State Exchange, IEEE NOMS 2016, Istanbul, Turkey, 26 April 2016. Updates on Coupled Congestion Control for RTP Media (draft-ietf-rmcat-coupled-cc-01) , 6 April 2016, RMCAT, 95th IETF meeting, Buenos Aires, Argentina.

11. TCB sharing: RFC 2140 vs. reality (draft-welzl-tcpm-tcb-sharing) , 5 November 2015, TCPM, 94th IETF meeting, Yokohama, Japan.

12. Coupled Congestion Control for RTP Media (draft-ietf-rmcat-coupled-cc-00) , 6 November 2015, RMCAT, 94th IETF meeting, Yokohama, Japan.

13. Coupled Congestion Control for RTP Media (draft-welzl-rmcat-coupled-cc-05) , 20 July 2015, RMCAT, 93rd IETF meeting, Prague, Czech Republic.

14. Coupled Congestion Control for RTP Media (draft-welzl-rmcat-coupled-cc-04) , November 12, 2014, 91st IETF Meeting, Honolulu, USA.

15. Coupled Congestion Control for RTP Media, ACM SIGCOMM Capacity Sharing Workshop (CSWS 2014), 18 August 2014, Chicago, USA. Best Presentation award

16. Coupled Congestion Control for RTP Media, August 1. 2013, 87th IETF Meeting, Berlin Germany.

Awards and Scholarships

- Kristine Bonnevie Stipend for visiting researcher in Tesa Laboratory, Toulouse, France. from Mar 2020 - May 2020.

- Travel grants for ACM IMC 2014 and ACM SIGCOMM 2016.

- Best paper award at the SIGCOMM capacity sharing workshop 2014.

- Best paper award at the IEEE IMCEC 2016.

- NordPlus Scholarship for exhange masters student in Helsinki University of Technology (not taken).
- Research Fellow in Service Layer Technology, Ericsson Research, Stockholm.

Languages

- Fluent in English and Bengali; both verbal and written.
- Norsk: Very good writing and speaking skills. (got **A** in Level 3 which is equivalent to B2).
- Confident public speaker - including multimedia presentation.

References (Details on Request)

- **Michael Welzl**, Professor, University of Oslo, Norway
- **Stein Gjessing**, Professor, University of Oslo, Norway