

NISHAT SULTANA

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Email:

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RELEVANT COURSES

Telecommunication Systems, Optical Communication, Mobile and Satellite Communication, Electro-Optical Systems, Digital Signal Processing, Advanced Communication Theory, Information Science

EDUCATION

Master of Science in Electrical Engineering, August 2017-Present

Expected date of graduation: Summer 2019 (Upon completion of the internship at Ericsson)

Montana State University, Bozeman, MT, USA. GPA: 3.85

Master of Science in Computer Engineering, September 2014-August 2016

Chosun University, South Korea. GPA: 3.9

Bachelor of Science in Electrical & Electronic Engineering, January 2008-December 2013

Independent University, Bangladesh. GPA: 3.88

PROFESSIONAL EXPERIENCE

Engineering Intern RF Svcs, Ericsson, Plano, TX (June 2019-August 2019)

- Tested, validated and upgraded AT&T network nodes from 4G LTE to 5G.
- Prepared and verified test instructions for 4G LTE and 5G RAN.
- Prepared test instructions for the new 5G features such as small cell, mm wave, massive MIMO, low latency, and high bandwidth.

Teaching Assistant, Montana State University, Bozeman, MT,

Courses: Telecommunication Systems labs, Circuits-II labs (January 2018-April 2018), Circuits, Devices and Motors (August 2017-May 2019)

Assistant Engineer and Team Leader of the software implementation project,

April 2012-July 2013

Bengal Group of Industries, Dhaka, Bangladesh

- Prepared bidding documents of national and international solar power projects
- Designed small solar home systems and provided customer care when needed
- Worked in several renewable energy implementation and maintenance projects
- Coordinated the nationwide software implementation project with DataBiz Software Limited

RESEARCH EXPERIENCE

Research Assistant, August 2017-May 2019

Optical Communication Research Group, Montana State University

Projects:

1. Modelling and simulation of high performance Quasi Single Mode Fiber (QSMF) based Optical Communication Systems in order to combat capacity crunch in the long haul optical fiber links.
 - Analyzed the performance of the newly modelled QSMF fiber based optical communication system on the basis of BER, Q parameter and OSNR.
 - Analyzed the performance of MATLAB and Simulink based coherent optical communication systems using hybrid fiber spans, consisting of the concatenation of QSMF with a smaller effective area single-mode fiber (i.e. Corning Vascade® EX3000) which can simultaneously reduce fiber nonlinearities and multipath interference.

2. Development of real time Next Generation Optical-Communication Systems.

- Developed a DPSK based real time optical communication system.
- Built an Optical Wireless Communication System using Universal Software Defined Radio.
- Evaluated the performance of BPSK, DPSK, QPSK and QAM schemes in the LaserComm testbed.

Research Assistant, August 2014–August 2016

3D Image Processing Laboratory, Chosun University, South Korea

Master's thesis: "A cryptographic evaluation of double random phase encoding in the gyrator domain".

- Comparative study of Image Cryptography and Steganography algorithms.
- Double Random Phase Encoding in Fourier Gyrator and Fresnel Domain analysis, Image hash cipher construction, Digital Signatures.
- Digital holography and 3D imaging techniques analysis.
- Development of Optical Domain based robust image hash models.

Undergraduate Senior Project: "An experiment-based study on Software Defined Radio (SDR) using MATLAB".

PUBLICATIONS

- "Avalanche effect and bit independence behaviors of double random phase encoding schemes," Proc. SPIE 9867, Three-Dimensional Imaging, Visualization, and Display 2016, 98670Z (June 1, 2016); doi:10.1117/12.2222158
- "Image Authentication Scheme with Photon Counting Gyrator Transform", Proc. Korea Multimedia Conference 2016
- "Avalanche and Bit Independence Properties of Photon-counting Double Random Phase Encoding in Gyrator Domain", Current Optics and Photonics, Vol. 2, Issue 4, pp. 368-377 (2018), OSA Publishing

SCHOLARSHIPS & AWARDS

- Studied a Master of Science in Electrical Engineering at Montana State University with departmental scholarship.
- Recipient of Grace Hopper Scholarship'2018.
- Studied Master's in Computer Engineering in Chosun University, South Korea as a **Korean Government Scholarship'2013** Grantee.
- Studied with 100% tuition waiver at Independent University, Bangladesh as Merit Scholar & Recipient of the certificates of: Vice Chancellor's honour list, Vice Chancellor's List, Dean's List.

PROFESSIONAL SKILLS

- Critical thinking, Active learning, Complex problem solving, Technical writing, Data analysis
- Circuit design, Instrumentation and electrical measurements
- Programming Languages: MATLAB, Assembly, Python, C, C++
- Simulator: LabVIEW, PSpice, PSCAD, Visual Studio, Proteus, MATLAB-Simulink, MPLAB, MASM, Mathematica
- Operating Systems: Ubuntu (Linux), Windows - XP, 10

LANGUAGE SKILLS

English (fluent), Bengali (native), Korean (fluent), Hindi (fluent), French (elementary)