Naveed Anwar Bhatti

📍 H#22, St#36, Orchard Area, Sector C, DHA 1, Islamabad, Pakistan.

📱 +92- 321-5167787

✉️ naveedanwar.bhatti@polimi.it, hunarame@gmail.com

🌐 home.deib.polimi.it/bhatti/

Sex Male | Date of birth 22/09/1988 | Nationality Pakistani

WORK EXPERIENCE

April, 2018 – Current

Post-Doctoral Fellowship
RISE SICS AB, Stockholm, Sweden

Feb, 2012 – Oct, 2014

Research Associate
SysNet Lab, National University of Computer and Emerging Sciences, Islamabad

Wireless Sensor Networks:
- Hands on experience of installation and configuration of TinyOS.
- Analyse different wireless energy transference techniques that can be used in WSNs.
- Hands on experience on TelosB, Waspmote, Arduino and several others

Botnet Detection:
- Hands on experience of installation and configuration of Bro- Intrusion Detection System.
- Worked on the detection of different kinds bot's and study the life cycle of a botnet.
- Analysis of a 2.7TB(4 days) network trace for botnet detection using Bro-IDS & tshark.
- Lead a team of researchers to deliver a project on real time ISP based detection of botnets.

Academia

August 2013- Dec 2013
August 2012- Dec 2012
August 2011- Dec 2011

Teacher Assistant of "Advance Embedded Systems" course for MS (TE)
National University of Computer and Emerging Sciences, Islamabad

- Conducted tutorial labs for TelosB, Mbed and MSP430(Evaluation board) platforms.
- Supervised course projects.
- Mark Quizzes, Sessionals and Finals

Academia

June 2010- July 2010 (6 weeks)

Internee
Pakistan Telecommunication Company Ltd, Islamabad

- Orientation to Digital Access Cross Connect Network and OFS
- Worked on DCME, LRE's and DXX system
- Worked in NMS of Alcatel (SbS)

Telecom Company

June 2010- July 2010 (6 weeks)

Internee
FAST Engineering Society, National University of Computer and Emerging Sciences, Islamabad

- Worked on AVR Atmega16 developer Kit
- High power motor interfacing with microcontroller using H-Bridge
- Integration of sensor data and robotic arm for autonomous behaviour generation

Academia

EDUCATION AND TRAINING

Nov, 2014 – Feb 2018

Ph.D. (Computer Science)

Politecnico di Milano, Milan , Italy

The focus of this doctoral research is to enable transiently-powered embedded sensing devices to make progress across periods of energy unavailability by developing software techniques. As energy availability is likely erratic in ambient harvesting or wireless energy transfer settings, applications may be unpredictably interrupted. To behave dependably, applications should resume from where they left as soon as energy is newly available.

August, 2011 – July 2013 (Gold Medal)

MS (Computer Science)

National University of Computer and Emerging Sciences, Islamabad

- Network Security
- Cloud computing
- Multi Agent Systems
- Swarm Intelligence

August, 2007 – July 2011

BS (Telecommunication)

National University of Computer and Emerging Sciences, Islamabad

- Next Generation Networks
- Advance Embedded Systems
- Wireless and Mobile communication

PERSONAL SKILLS

Mother tongue(s)   Urdu

Other language(s)

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	
B2	B2	B2	B2	B2

English

TOEFL(iBT)	**Score = 100/120**	
GRE (iBT)	**Score = 305/340**	

Social skills and competences

Working as a Research Assistant in my lab (SysNet) at NUCES, I learnt the true meaning of "Teamwork". There comes many occasion when we have to meet the deadlines in order to deliver a project to our funding agency on time and in such a scenario teamwork is the only option to deliver the task efficiently and quickly.

Organisational / managerial skills

- I worked as a Team Lead in SysNet lab on a small project. During this project, I managed a team of three researchers and delivered the project to the funding agency.
- I was the Vice Coordinator of the Creative Department of NUCES Engineering Society and I managed the decor and promotion of all the major events held under the banner of this society for the year 2010.
- I was also the Vice Coordinator of Robotics Society and conducted many robotics related events i.e. Robo Race (Line following competition), Robo War etc.

TALKS AND WORKSHOPS

May 28th , 2015

- ***Aerial drone showcase at Polifactory* (Politecnico di Milano - Campus Bovisa)**
  Conducted a workshop to show the potential of drones as tools to enable advanced mobile sensing.

June 8th, 2015

- **Interactive lecture on embedded sensing (Politecnico di Milano - Campus Bovisa)**
  Gave talk on Embedded sensing, which is the technology behind the internet of things, cyberphysical systems, and wireless sensor networks.

July 25th, 2016

- **Internet of things workshop (ComSys lab, RWTH Aachen, Germany)**
  Gave talk on Internet of Things Workshop with a focus on transiently-powered sensing systems

Publications	▪ **Naveed Anwar Bhatti**, Affan A.Syed and Hamad Alizai, " *Sensors with Lasers: Building a WSN Power Grid*", The 13th ACM/IEEE Conference on Information Processing in Sensor Networks (IPSN), **April 2014, Berlin (Germany)**.

▪ Osama Haq, Zainab Abaid, **Naveed Anwar Bhatti**, Zaafar Ahmed and Affan A.Syed, "*SDN-inspired, Real-time Botnet Detection and Flow-blocking at ISP and Enterprise-level* ", IEEE International Conference on Communications (ICC 2015), **June 2015, London (UK)**

▪ **Naveed Anwar Bhatti**, Affan A.Syed and Hamad Alizai, "*Laser based Energy Distribution Architecture for Decoupling Energy and Sensing Planes in WSN* ", International Journal of Distributed Sensor Networks (IJDSN), **2015**.

▪ **Naveed Anwar Bhatti**, Luca Mottola," *Efficient State Retention for Transiently-powered Embedded Sensing* ", International Conference on Embedded Wireless Systems and Networks (EWSN 2016), **Feb 2016, Graz (Austria)**.

▪ **Naveed Anwar Bhatti**, Hamad Alizai, Affan A.Syed and Luca Mottola, "*Energy Harvesting and Wireless Transfer in Sensor Network Applications: Concepts and Experiences* ", Transactions on Sensor Networks ACM (TOSN), April **2016**.

▪ **Naveed Anwar Bhatti,** "*Back to The Future: Sustainable Transiently Powered Embedded Systems*", **IPSN, April 2016**, Vienna (Austria). **Best PhD Forum Presentation**

▪ **Naveed Anwar Bhatti** and Luca Mottola "*Compiler-assisted Automatic Checkpointing for Transiently powered Embedded Devices* ", EWSN, **Feb 2017, Uppsala (Sweden)**.

▪ **Naveed Anwar Bhatti** and Luca Mottola, "*HarvOS: Efficient Code Instrumentation for Transiently-powered Embedded Devices* ", International Conference on Information Processing in Sensor Networks (IPSN), **April 2017, Pittsburgh (USA)**.

Projects	▪ **System support for transiently-powered computing (Ph.D. CS)**

We are developing software techniques to support applications that may be unpredictably interrupted because of energy shortages and must later resume as soon as energy is newly available. Examples are in the domains of smart buildings and wearable devices, whose energy provisioning may be assisted through ambient energy harvesting. Because energy availability will be erratic, shutdowns and reboots will frequently happen. To ameliorate this, we are developing software based solution to checkpoint the program state on stable storage with minimal latency and energy consumption.

▪ **Long Range RFID: Energy harvesting and transference enabled WSN system (MS CS)**
We designed a prototype system, which enables WSN platform to communicate at longer range than Passive-RFID, have more sensing capabilities than Active-RFID and will have infinite life time as compared to traditional WSN.

▪ **IUGV (Internet Controlled Unmanned Ground Vehicle) Final Year Project (BS Telecom)**
We designed a hardware platform where user can able to control the vehicle movement, interact with environment through manipulator and have live view of the location over the internet. Awarded best FYP in university.

▪ **PIE (Personal Information Extractor) – On Windows Mobile 7.5**
We developed an app in Windows Mobile 7.5 SDK which automatically extracting the visiting card information using OCR. The App was declared best project and awarded $500(Given by Microsoft Research).

ADDITIONAL SKILLS

Honours and awards	▪ Gold Medal in MS(CS) Issued by: FAST NU Islamabad

▪ Best Cloud Computing course project Issued by: Microsoft Research and FAST NU Islamabad
▪ Best FYP BS(TE) – 2011 Issued by: FAST NU Islamabad
▪ Winner ROBOTHON Issued by: IEEE GIKI
▪ Winner ROBORACE Issued by: FAST NU Islamabad
▪ Vice Coordinator Creative Department (2009-2010), ENGG Society, FAST NU Islamabad

Technical skills and competences	**HARDWARE:** Wasp Motes, ST Nucleo L152RE, ST Nucleo F091RC , Parallax Propeller, TelosB mote , NXP Mbed LPC1786 , Atmel Network Gateway 100 , AVR ATMEGA-16 , MSP430 Launchpad, Arduino, Raspberry Pi **SOFTWARE:** TinyOS 2.1.1 , Keil uVision v5, VS.NET 2010 , Bro 2.1 (NIDS) , Verilogger Pro , Django Web Framework **LANGUAGES:** C++, C# , Java , nesC , MATLAB , HTML ,CSS , SQL
Artistic skills and competences	**GRAPHIC DESIGNING:** I really enjoy designing graphical videos/images using Corel Draw, Adobe CS, Adobe Premier Pro and Google Sketchup (for 3D modelling) **MUSIC:** I also love composing music using Fruity Loops Studio and Piano
Other skills	Team Leadership, Strong Work Ethic and Good Communication Skills

REFERENCES

• **Dr. Luca Mottola**
luca.mottola@polimi.it
Associate Professor
Dipartimento di Elettronica, Informazione e Bioingegneria
Politecnico di Milano, Italy

• **Dr. Affan A Syed**
affan.syed.usc@gmail.com
Director Technology,
INNEXIV (Private) LIMITED
Islamabad, Pakistan

• **Dr. Hamad Alizai**
hamad.alizai@lums.edu.pk
Assistant Professor
Computer Science Department, LUMS
Lahore, Pakistan