1050 Nevada Street, Apt 121
Reno, NV 89503
+1 (551) 587 0783
sbhunia@nevada.unr.edu
www.cse.unr.edu/~bhunias

Suman Bhunia

Education

2013–present GPA:4.0/4.0 **Ph.D. Candidate in Computer Science**, *University of Nevada, Reno*, *Research Area:* Security and Vulnerability in Cognitive Radio Network.

2011–2013 GPA:3.8/4.0 **Ph.D. Candidate in Computer Science**, *The Graduate Center of City University of New York*, *Research Area:* Security and Vulnerability in Cognitive Radio Network.

2008–2010 GPA:8.39/10 **M.Tech in Distributed and Mobile Computing**, *Jadavpur University*, Kolkata, India, *Thesis:* Performance Evaluation of WiMAX Network in Aspect of Modulation and Coding Schemes and Hand-off using OPNET.

2004–2008 GPA:8.36/10 **B.Tech in Electronics and Communication Engineering**, *West Bengal University of Technology*, Kolkata, India.

Experience

Research Experience

2013–present **Research Assistant**, *Computer Network Laboratory*, University of Nevada, Reno.
- Cognitive Radio Testbed setup using USRP, GNU Radio and Soekris boards.
- Evaluate performance for Channel bonding, fragmentation, Jamming attack etc.
- Stochastic simulation of Cognitive Radio using Python and compare with actual result.
- Apply Artificial Intelligence for predicting the environment and channel selection.

2010–2011 **Senior Research Fellow**, *Department of ETCE*, Jadavpur University, Kolkata, India.
- Built MAC layer for Cognitive Radio in OPNET using Proto-C.
- Cross Layer Optimization VoIP performance and End-to-End QoS over Cognitive Radio.
- Enhanced VoIP performance in congested network by changing packet payload.
- Proposed effective Adaptive Jitter Playout buffer algorithm for Real-Time application.

2009–2010 **M.Tech Thesis**, *Broadband Wireless Communication Lab*, Jadavpur University.
- Evaluated performance of mobile WiMAX network with varying speed of mobile nodes, pathloss models, traffic type and different scheduling services.
- Reduced Hand-off delay for WiMAX network by integrating MAC and Mobile-IP.

2007-2008 **B.Tech Final Project**, *Meghnad Saha Institute of Technology*, Kolkata, India.
- Created Microcontroller 89S52 based automatic traffic signal controller.
- Controller minimizes congestion by sensing traffic density on road and schedule signals intelligently.
- Build hardware using registers, OPAMP chips, photo resistor, display, power supply circuitry.

2007 **Summer Intern**, *MicroPro*, Kolkata, India.
- Built Automatic Temperature Controller.

Teaching Experience

2011-2012 **Adjunct Lecturer**, *Department of Computer Science*, City College of New York.
Courses Taught: Introduction to Computing (C++) and Operating System Laboratory

2011 **Adjunct Lecturer**, *Institute of Engineers, India*, Kolkata.
Courses Taught: Computer and Informatics

Research Interest

Wireless Networking — Cognitive Radio, Dynamic Spectrum Access, Cross Layer optimization; End-to-End performance, QoS and resource management, Testbed Implementation

Security Wireless Honeypot, Jamming attack

Technical Skills

Language C, C++, Java, Python, Haskell, Prolog, Assembly level Programming

Simulator OPNET, GNURadio, Netlogo, MATLAB, Java wireless toolkit

O.S. Linux, Windows

Fellowships and Awards

2011 Awarded two year CUNY Science Fellowship

2010 Paper entitled "Study of OPNET and performance evaluation of WiMAX network under various terrain conditions in OPNET" won the *best student paper award* at the National Conference on Microwave and Communication NCMicroCom-2010

2008 Awarded full scholarship for M.Tech programme for qualifying Graduate Aptitude Test in Engineering (All-India basis)

Publications

Journal

Suman Bhunia, Shamik Sengupta, and Felisa Vazquez-Abad. Performance Analysis of CR-Honeynet to prevent Jamming Attack through Stochastic Modeling. *revision submitted to Pervasive and Mobile Computing*.

T. Chakraborty, A. Mukhopadhyay, S. Bhunia, I.S. Misra, and S.K. Sanyal. An optimization technique for improved voip performance over wireless lan. *Journal of Networks*, 7(3):480–493, 2012.

S. Bhunia, I.S. Misra, S.K. Sanyal, and A. Kundu. Performance study of mobile wimax network with changing scenarios under different modulation and coding. *International Journal of Communication Systems*, 24(8):1087–1104, 2011.

A. Kundu, I.S. Misra, S.K. Sanyal, and S. Bhunia. Voip performance over broadband wireless networks under static and mobile environments. *International Journal of Wireless & Mobile Networks (IJWMN) Vol*, 2(4), 2010.

Conference Proceeding

Suman Bhunia, Shamik Sengupta, and Felisa Vazquez-Abad. CR-Honeynet: A Learning & Decoy Based Sustenance Mechanism against Jamming Attack in CRN. In *Military Communications Conference (MILCOM), 2014 IEEE*, pages 1173–1180. IEEE, 2014.

Suman Bhunia, Xing Su, Shamik Sengupta, and Felisa Vázquez-Abad. Stochastic model for cognitive radio networks under jamming attacks and honeypot-based prevention. In 15^{th} *International Conference on Distributed Computing and Networking (ICDCN)*. Springer, Jan 2014.

Suman Bhunia Erald Troja, Kenneth Ezirim. Route aware dynamic channel scheduling and selection for multi-hop cognitive radio networks. In *IEEE* 78^{th} *Vehicular Technology Conference, VTC 2013-Fall*. IEEE, 2-5 September 2013.

A. Mukhopadhyay, T. Chakraborty, S. Bhunia, I.S. Misra, and S.K. Sanyal. Study of enhanced voip performance under congested wireless network scenarios. In *International Conference on Communication Systems and Networks (COMSNETS)*. IEEE, 2011.

T. Chakraborty, A. Mukhopadhyay, S. Bhunia, I.S. Misra, and S.K. Sanyal. Analysis and enhancement of qos in cognitive radio network for efficient voip performance. In *World Congress on Information and Communication Technologies (WICT)*. IEEE, 2011.

A. Mukhopadhyay, T. Chakraborty, S. Bhunia, I.S. Misra, and S.K. Sanyal. An adaptive jitter buffer playout algorithm for enhanced voip performance. In *International Conference on Advances in Computing and Information Technology (ACITY)*. Springer, 2011.

T. Chakraborty, A. Mukhopadhyay, S. Bhunia, I.S. Misra, and S.K. Sanyal. Optimizing voip call in diverse network scenarios using state-space search technique. In *International Conference on Advances in Computing and Information Technology (ACITY)*, pages 231–242. Springer, 2011.

A. Kundu, S. Bhunia, I.S. Misra, and S.K. Sanyal. Comparison of voip performance over wimax, wlan and wimax-wlan integrated network using opnet. In *International Conference on Wireless and Mobile Networks*. Springer, 2010.

S. Bhunia, A. Kundu, I.S. Misra, and S.K. Sanyal. Reducing hand-off latency in wimax network using cross layer information. In *International Conference on Advances in Computer Engineering (ACE)*, pages 346–348. IEEE, 2010.