Ren, Wenyu

Email: wren3@illinois.edu **Homepage:** www.wenyuren.com

EDUCATION

University of Illinois at Urbana-Champaign (UIUC) **Urbana, Illinois, USA**

Ph.D. in Computer Science (GPA: 3.88/4.0) *August 2013 – May 2019*

Tsinghua University (THU) **Beijing, China**

Bachelor of Engineering, Electronics Engineering *September 2009 – June 2013*

GPA Major: 93.7/100; Overall: 92.82/100; Ranking 6/239 (Top 3%)

Stony Brook University (SBU) **Stony Brook, New York, USA**

Exchange Student, Electrical & Computer Engineering (GPA: 4.0/4.0) *August 2011-December 2011*

RESEARCH INTERESTS

Machine Learning, Anomaly Detection, Network Security, Distributed Systems, Wireless Network

PROFESSIONAL SKILLS

C/C++, Java, Haskell, Python, PHP, HiveQL, Matlab scripts, Verilog, VHDL

WORK EXPERIENCES

Facebook (Advertisement Ranking Team) **Menlo Park, California, USA**

Research Scientist *June 2019- Present*

Facebook (Advertisement Ranking Team) **Seattle, Washington, USA**

Software Engineer Intern *May 2018- August 2018*

Facebook (Site Integrity Team, Machine Learning Group) **Menlo Park, California, USA**

Software Engineer Intern *May 2016- August 2016*

Google (Search Infrastructure Team) **Mountain View, California, USA**

Software Engineer Intern *May 2015- August 2015*

RESEARCH EXPERIENCES

Online, Context-aware, Intelligent Anomaly Detection and Analysis for SCADA Systems *June 2017- May 2019*

- Designed a framework which monitors the network traffic in SCADA networks, detects anomalous events in real time, and provides context-aware information for those anomalies to guide reasoning and consequences of anomalous events. Clustering, machine learning, and Bayesian networks are utilized in the project.

Synchrophasor Data Real-time Compression *August 2016- May 2017*

- Designed an intelligent synchrophasor data real-time compression framework for wide-area monitoring systems. Principal Component Analysis (PCA) and Discrete Cosine Transform (DCT) are utilized and an early disturbance detector is used to differentiate normal and disturbance data.

Applied Resiliency for More Trustworthy Grid Operation (ARMORE) *August 2014- May 2017*

- Designed a unique, extensible and efficient operation-level traffic analyzer framework for Smart Grid. It builds a multi-level statistic structure of all the packets and runs a threshold-based anomaly detection algorithm.

PUBLICATIONS

- **Wenyu Ren**, Tuo Yu, Tim Yardley, Klara Nahrstedt, "CAPTAR: Causal-Polytree-based Anomaly Reasoning for SCADA Networks", *IEEE Smart Grid Communications (SmartGridComm)*, October 2019.
- **Wenyu Ren**, Tim Yardley, Klara Nahrstedt, "EDMAND: Edge-Based Multi-Level Anomaly Detection for SCADA Networks", *IEEE Smart Grid Communications (SmartGridComm)*, October 2018.
- **Wenyu Ren**, Tim Yardley, Klara Nahrstedt, "ISAAC: Intelligent Synchrophasor Data Real-Time Compression Framework for WAMS", *IEEE Smart Grid Communications (SmartGridComm)*, October 2017.
- **Wenyu Ren**, Steve Granda, Tim Yardley, King-Shan Lui, Klara Nahrstedt, "OLAF: Operation-Level Traffic Analyzer Framework for Smart Grid", *IEEE Smart Grid Communications (SmartGridComm)*, November 2016.
- Suleyman Uludag, King-Shan Lui, **Wenyu Ren**, Klara Nahrstedt, "Secure and Scalable Data Collection With Time Minimization in the Smart Grid", *in Smart Grid, IEEE Transactions on , vol.PP, no.99, pp.1-1.*
- Suleyman Uludag, King-Shan Lui, **Wenyu Ren**, Klara Nahrstedt, "Practical and Secure Machine-to-Machine Data Collection Protocol in Smart Grid", *IEEE M2MSec*, October 2014.
- **Wenyu Ren**, Yong Li, Siyu Chen, Depeng Jin, Li Su**, "**Potential Predictability of Vehicles' Visiting Duration in Different Areas for Large Scale Urban Environment", *IEEE WCNC*, April 2013.