## Summary

Passionate about disruptive technology introduction and idea creation. More than 18 years experience in mobile telecommunications performing solution sales, hardware architecture, end-to-end IP and wireless network design, and software architecture projects. Five years of customer interaction and experience at innovation through patent introduction and solution creation. More than 7 years experience as a scientific researcher using machine learning techniques. Years of experience leading people teams and people management experience as director of diversity programs.

## **PROFESSIONAL EXPERIENCE**

### 2015- Present Various Clients, Cloud Consulting Services

Two years experience consulting and implementing cloud migration strategies for small companies. Helped reduce more than 50% costs for infrastructure services of small technology company by migrating their global compute needs to Microsoft Azure service.



2016-Present Nokia, **Director Customer Solutions**

Responsible for introducing network virtualization and open source based end to end solutions to Verizon Communications. Created business models and solution integration stories for next generation networks and applications that provide mobile and fixed broadband services to consumers.

Met 100% of targets creating strategies for introducing dynamic edge cloud computing to mobile networks for new revenue opportunity.

2012-2015 Alcatel-Lucent, **Principal** **Wireless Chief Technical Officer**

Experience in open source cloud based API’s and virtualized Linux containers for network intensity mapping and network analysis to discover optimal cell placement for cost versus performance improvements in live data networks. Leveraging Linux container portability designs taking specialized data analysis container to Microsoft Azure™ to deliver cloud based solutions for machine learning analysis.

Created end to end strategic use cases for LTE data services by showing customer how to optimize the combination of available features resulting in increased revenue capability and improved user experience for wireless users.

1. Achieved over 30% metric improvements with wireless networks through big data analytics and machine learning by using PySpark in a Hadoop environment to process data lake information.

2008-2012 Alcatel-Lucent, **Solutions Specification Architect**

Led international development team in Bangladesh, India using AGILE and Scrum development techniques to deliver IBM Rhapsody model driven project 1.5 times faster than traditional process delivery without quality tradeoff.

Modeled and delivered architecture for distributed load balancing algorithms using IBM Rhapsody tools for multi-processor architecture to more than double deployed hardware capacity.

2004-2008 Lucent Technologies, Chief **CDMA/EVDO Architect**

Designed packet data hardware architecture and multi-carrier allocation technology in 3G EVDO wireless system resulting in 3x bandwidth improvement over current 3G architectures.

Designed hardware and software architecture for 3G Radio Network Controller (RNC) Groups creating a 64x virtual networking expansion of the coverage area and a distributed load management architecture on a single logical machine. The resulting hardware architecture increased capacity and fault tolerance and optimized the cost to performance ratio of the core network.

2000-2004 Lucent Technologies, **UMTS/GSM Architect**

Defined SS7 and SIGTRAN architecture and product evolution for Serving GPRS Service Node (SGSN) for UMTS packet networks Defined distributed call processing algorithms and architecture for UMTS packet network. Developed expertise in IP and ATM protocol inter-working resulting in helping improve efficiency and transform data networks.

1999-2000 Lucent Technologies, **System Engineering**

Team leader of IP Telephone projects including vendor management and technical specifications, standards based interface work (H.323, SIP protocols), and OAM&P issues resulting in an end-to-end delivery.

Developed architecture for consumer services to perform remote video monitoring over IP and remote data interaction to control home entry and home delivery services.

**Technical Projects**

* Increased network performance through research with data analytics of wireless networks for RF design analysis using Hadoop and Python Spark to syndicate data sources from multiple input streams. Used data from 3rd party wireless metrics like AGOOP, Root Metrics, Twitter location and frequency information, per call network data, and performance counters. Applied Gaussian Process estimation of data and machine learning techniques were used to estimate locations of hot spots for optimal capacity placement. Implemented these algorithms in portable Linux containers and Cloud based delivery architecture to improve scalability, cost, and availability to other users.
* Increased capacity and reduced design specification cycles and design errors observed in field deployment by 50% through simulation design. The design solved a problem where one of N units were running out of session capacity because of the mobile cell access topology (Hot Spots).
* Led an international development team of more than 20 members resulting in a 30% capacity improvement in the wireless radio network utilization. Designed and implemented wide area cellular self organization algorithms to optimize forward link utilization resources in wireless networks. Skills included self organization techniques, load distribution algorithms, parallel data distribution techniques, network configuration and deployment analysis of cells, and AGILE development methods for rapid deployment.

## **Skills**

**Cloud Architecture –**Experience with provisioning tools such asPuppet, Chef, and experience with various automatic provisioning scripts for Linux, virtual environments and virtualization services. Experience with Amazon Web Services, Microsoft Azure and Google Cloud Platform. Service deployment and telecom and carrier grade experience with building and deploying high availability and redundant platforms in OpenStack.

**Network virtualization --**Linux containers "Docker" based designs. Ambari Hadoop Clusters. REDIS database designs. Cassandra database exposure. PySpark distributed data analysis. Data mining and data syndication. Parallel computing implementations.

**Simulation Design –** Experience designing and building simulation environments for networking performance, algorithm performance, data syndication, and system component performance problems. Experience in rapid use of open source and purpose developed solutions.

**Languages and OS --** “C”,”C++”, “JAVA™”, Python™, Pearl™, Unix, HTML, Matlab, UNIX/Linux Scripts, SQL, MySQL. Knowledge of machine virtualization and open source driven performance evaluation of real-time performance. Red Hat Enterprise Linux™ and Monta-Vista™ Carrier Grade distributions.

**AGILE Development --**  Product Owner, SCRUM™ teams, Kanban teams.

**Other** -- 3GPP 4G Wireless, 3GPP2 3G Wireless GSM, IEEE and UMTS. IP protocols, CCNA training, VLAN, MPLS, subnetting, routing protocols. Expert in Raspberry Pi prototyping.

## **Research Experience**

**Cognitive Visual Systems Incorporating Stereopsis.** Ph.D dissertation involved creating a natural representation of visual data based on a biological system using machine learning algorithms based on artificial neural networks and using that representation in a object recognition scheme. 1998.

**Job Shop Scheduling with Genetic Algorithms**. Utilized machine learning approach called genetic algorithms derived from the theories of evolution to construct programs that search through parameters to find optimal answers using machine learning algorithms. 1996.

**Pose estimation by Appearance based vision.** At Sandia National Laboratories, created computer vision routines based on GNU "C" in Khoros/Cantata object oriented visual software environment. 1995

## **Awards and Accomplishments**

Distinguished Member of Technical Staff Award in May 2010 while contributing in the CDMA/Solutions HRPD organization.

IEEE Member; IEEE ComSoC Member; IEEE Local Chicago Member

Alcatel-Lucent Technical Academy (Juror Review Admittance Internal Technical Society) 2008- Present

Alcatel-Lucent Technical Academy Innovation Working Group member 2010-Present/ Outreach Working Group –Lead 2012

**Patent Awards**

“*Apparatus For Providing Quality Of Service Level In Broadband Communications Systems”* Patent number 7652990

This patent leverages intellectual property for ALU across access technologies to provide differential services for customers in data networks.

“*IP Packet Access Gateway*” Patent number 7068598

This patent provides the basis of interfacing circuit switch access technologies with IP based technologies which is fundamental to bridging ALU’s legacy and future business in wireline access.

“*Portable Wireless Gateway*” Patent number 7346025

This patent provides intellectual property for ALU in personal WiFi access with broadband wireless backhaul and represents a huge potential in royalty revenue for ALU.

###### Education

**8/93-12/97 North Carolina A&T State University,** Greensboro, NC. Ph.D. in Electrical Engineering.

**8/90-5/93** **Purdue University**, West Lafayette, IN. M.S., in Electrical Engineering.

**6/86-8/90** **Tuskegee University**, Tuskegee, AL. B.S. in Electrical Engineering.

**References:** <http://www.linkedin.com/in/sidneybryson> (over 14 recommendations posted) additional upon request.