

RAJSIMMAN RAVICHANDIRAN

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PROFILE STATEMENT

Self-motivated Masters graduate with strong research and technical acumen in cloud computing, Software-Defined Networking and cybersecurity; experienced professional in developing and deploying software solutions in production environments

EDUCATION

Master of Applied Science, University of Toronto (U of T) 2016-2019
Major in Electrical Engineering
Thesis: *Autonomic Management System in SAVI-IoT*

Bachelor of Applied Science, U of T 2009-2014
Major in Electrical Engineering with 1 year Professional Year Experience (PEY)

- Final year GPA: 3.51, Dean's List

TECHNICAL SKILLS

- **Programming:** Python, C/C++, Shell Scripting, SQL, HTML, JavaScript
- **Operating Systems:** Linux (Ubuntu, RedHat, Kali) and Windows
- **Applications:** OpenStack, Docker, Elasticsearch, Kafka, Cassandra, Splunk, Django
- **Tools:** Git, Certbot, Burp Suite, Fail2ban, OSSEC, WireShark, MATLAB

RELEVANT ENGINEERING EXPERIENCE

Master of Applied Science Thesis Research, U of T Sept. 2016 - Dec. 2018

- Designed Autonomic Management System (AMS) to manage IoT applications
- Developed autoscaling modules for microservices and virtual machines (VMs) using Docker
- Utilized Software-Defined Networking (SDN) mechanisms to govern network bandwidth
- Implemented Neurocomputing-based anomaly detection models to thwart security attacks
- Created crowd monitoring IoT application (using WiFi data) to showcase protocol flaws

Network Analyst, Bell Canada Jan. 2015 - Sept. 2016

- Developed full stack application to manage virtual resources on cloud platform
- Created web application for operations teams to troubleshoot network outage issues
- Designed software for analytics teams to query customer data usage information
- Built automated scripts to analyze network data for monitoring and management
- Produced customer intelligence reports to provide interesting insights on Bell's technologies

Research Assistant, Smart Applications on Virtual Infrastructure (SAVI) May - Dec. 2014

- Actively worked on national cloud testbed for creating future network architectures
- Implemented communication drivers between Kafka and Cassandra for resource management
- Created email notification functionalities for monitoring and management services
- Installed software and hardware servers for cloud infrastructure management
- Developed automated scripts to monitor health of management services

PROJECTS

Full Stack Developer, NetSoft CREATE Project Sept. - Dec. 2018

- Created internship portal for connecting Masters students with prospective employers
- Utilized Django for content management and Material Design Lite framework for front-end
- Secured communications using Certbot SSL certificates
- Integrated Fail2ban to safeguard compute resources on cloud infrastructure
- Deployed application in production environment: <https://netsoftcreate.ca>

Team Lead, User Behaviour Analysis using OSSEC on Cloud, U of T Sept. - Dec. 2016

- Analyzed user behaviours on VMs for OSSEC Host-based Intrusion Detection System (HIDS)
- Profiled users based on input shell commands on the environment
- Utilized Naive Bayes supervised machine learning model to accurately classify multiple users
- Trained learning model using open-source UNIX public dataset
- Achieved 69% accuracy without any hyper-parameter tuning or advanced training
- Implemented prototype on SAVI Testbed and released source code for community use

Team Lead, Video streaming on the Edge, SAVI Design Challenge, U of T Aug. 2014

- In a team of 4, created application to connect video content publishers and subscribers
- Utilized Twitter social platform for publisher/subscriber communications
- Incorporated Software-Defined Networking and Multicasting for video transmission
- Built application on SAVI Testbed in 3 days, **won Design Challenge**

PUBLICATIONS

Rajsimman Ravichandiran, Hadi Bannazadeh, Alberto Leon-Garcia, “eDoS Mitigation for Autonomous Management on Multi-Tier IoT”, *14th International Conference on Network and Service Management (CNSM 2018)*, Nov. 2018

Rajsimman Ravichandiran, Hadi Bannazadeh, Alberto Leon-Garcia, “Anomaly Detection using Resource Behaviour Analysis for Autoscaling systems”, *2018 IEEE Conference on Network Softwarization (NetSoft 2018)*, June 2018

Hamzeh Khazaei, **Rajsimman Ravichandiran**, Byungchul Park, Hadi Bannazadeh, Ali Tizghadam, Alberto Leon-Garcia, “Elascale: autoscaling and monitoring as a service”, *27th Annual International Conference on Computer Science and Software Engineering (CASCON 2017)*, Nov. 2017

Jieyu Lin, **Rajsimman Ravichandiran**, Hadi Bannazadeh, Alberto Leon-Garcia, “Monitoring and Measurement in Software-Defined Infrastructure”, *Integrated Network Management (IM 2015) IFIP/IEEE International Symposium*, May 2015

INTERESTS

Playing chess and organized team sports including Flag-Football and Basketball; learning and building simple Raspberry Pi projects; film (including documentaries)

References Available Upon Request