

Hung Cao

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Postdoc Fellow - Data Scientist

5 years experience in Data Science, Machine Learning, and AI; Collaborated with industry to analyze massive datasets, designed analytical architectures, and implemented working prototypes; During my PhD, I developed a new framework called Analytics Everywhere for exploring the IoT data streams using the combination of Edge Computing, Fog Computing, and Cloud Computing.

Experience

Industry Experience

- May 2019 – Present **Data Scientist, Rimot.io Inc.**
 - Developed the analytics algorithm/methodology using Edge Computing to analyse IoT data streams from the Industrial Internet of Things Ecosystems
- Dec 2017 – Present **Cloud Administrator, People in Motion Lab.**
 - Managed and operated the cloud infrastructure systems provided by Compute Canada
 - Installed, configured and allocated virtual cloud instances to other members in the lab
 - Supported cloud servers including security configurations, patching, and troubleshooting
- Oct 2010 – Mar 2011 **Embedded System Developer, CanhViet Co, Ltd.**
 - Interned as an embedded system developer
 - Built smart, embedded systems and automatically musical fountain controlling system
- Jan 2008 – Jan 2009 **Senior Member, CERobo Team of UIT.**
 - Participated Vietnam Robot Contest (ROBOCON 2008) as a senior team member representing for University of Information Technology
 - Instructed and trained young students to participate in this competition a year later
- Nov 2006 – Dec 2007 **Software Developer, Self-Employed.**

Research Experience

- May 2016 – Present **Researcher - Data Scientist, University of New Brunswick.**
 - Project:** Big data analytics for the Internet of Things data streams (Funded by Cisco)
 - Designed an Analytics Everywhere framework and built the Edge-Fog-Cloud architecture
 - Implemented novel analytical methodologies (descriptive, diagnostic, & predictive analytics) for IoT data
 - Project:** Smart parking in Saint John City collaborating with HotSpot Company (Funded by NSERC/Cisco)
 - Developed a parking prediction system based on Random Forest ML model using GIS & parking data
 - Project:** Big data analytics to improve transit system in Moncton City collaborating with Codiac Transit and The Black Arcs (Funded by NSERC Engage)
 - Built a graph database using Neo4j and analyzed realtime transit data for improving transit service
 - Performed descriptive statistics, clustering, predictive algorithm to anticipate trip schedule, behaviors
 - Project:** Investigations and Analysis of Industrial IoT Ecosystems in partnership with Rimot Inc., Acadia University, and Dalhousie University (Funded by MITACS)
 - Identified abnormalities from RF sensors data to support early warning system
- Oct 2014 – Nov 2015 **Research Associate, University College Dublin.**
 - Project:** High performance computing for massive LiDAR Data processing
 - Experimented, evaluated, and built kd-tree, Octree, k Nearest Neighbor algorithms in Python
 - Adapted Hadoop MapReduce to compute LiDAR data in parallel fashion, performed big LiDAR data analysis on the Cloud Computing environment and developed visualization software
- Jun 2011 – Aug 2014 **Researcher, University of Information Technology, VNU-HCM.**
 - Project:** Analysis and Synthesis Vietnamese Speech (Funded by UIT) - Senior member of Vietnamese Speech Processing Group
 - Project:** Hand-pose sign language recognition system for hearing-disable people (Funded by UIT)
 - Project:** Implementing a musical fountain controlling system based on the frequency analysis using FFT algorithm (Funded by VNU-HCM)

Education

- May 2016 – Nov 2019 **PhD in Geomatics Engineering (specialize in Data Science), University of New Brunswick, Fredericton, Canada, GPA: 4.1/4.3.** (Defended)
 - Emphasis:** Big Data Analytics, Internet of Things, Edge Computing, Fog Computing, Cloud Computing
 - Dissertation:** Developing an Analytics Everywhere Framework for the IoT in Smart City Applications
 - Relevant Course:** Intro to Big Data and Data Science, Machine Learning and Data Mining
 - Doctoral Scholarship co-funded by NSERC, Cisco, and UNB

- Sep 2017 – Feb 2018 **Diploma in University Teaching**, *University of New Brunswick*, Fredericton, Canada.
- Sep 2014 – Nov 2015 **MSc in Computer Science**, *University College Dublin*, Dublin, Ireland, *GPA: 3.83/4.2.*
- *Emphasis:* Machine Learning, Cloud Computing
 - *Thesis:* A new approach to process massive LiDAR data on the cloud computing environment
 - *Relevant Course:* Virtualisation and Cloud Computing, Machine Learning, Distributed Systems
 - 1st Class Honours
- Oct 2006 – May 2011 **BEng in Computer Engineering**, *University of Information Technology, VNU-HCM*, Ho Chi Minh City, Vietnam, *GPA: 7.51/10.*
- *Thesis:* Comparative study on controlling approaches and an experimental model for musical fountain (Score: 9.4/10)
 - *Relevant Course:* Object-Oriented Programming, Data Structures, Computer Architecture

Technical Skills & Soft Skills

Languages	Python, Scala, R, Java, C/C++, C#, Java Scripts, HTML, PHP, .NET, XAML
Other Languages	Linux shell scripts, Assembly, VHDL, Verilog, Embedded C
Database	SQL, MySQL, PostgreSQL, NoSQL (Neo4j, MongoDB, RethinkDB, Druid, HBase), DBaaS
OS	Linux, Windows Server, Windows, Windows Phone, Symbian, Android, Mac OS, iOS
IDE	Netbeans, Eclipse, Microsoft Visual Studio, SQL Server, Management Studio, SVN
Technologies & Tools	GitHub, Hadoop, Spark, Storm, Flink, YARN, MapReduce, Samza, Kafka, MXNet, Keras, Docker, XGBoost, LightGBM, Tensorflow, scikit-learn, NLTK, MLFlow, Pytorch, scikit-multiflow, Cisco Kinetic, Superset, Grafana, RabbitMQ, Maven, ZooKeeper, Ambari, Wazuh, Zeppelin, Hive, MapR, ArcGIS, QGIS, Tableau, Power BI, Latex
Soft Skills	Strong communication skills; Outstanding teamwork skills; Excellent critical thinking; Great attitude and self-motivator; Quickly recognize and solve problems; Adaptable and learn new technologies quickly; Strong and resilient to work under high pressure; Independent thinker with innovative ideas

Selected Qualifications

- Jan 11th 2019 *BigDat 2019 - The 5th International Winter School on Big Data, University of Cambridge*
- Nov 12th 2017 *Certificate of Completion - Deep Learning Fundamentals, Cognitive Class*
- Jan 7th 2017 *Certificate of Completion - Data Science Methodology, Big Data University*
- May 30th 2016 *Certificate - Neo4j Certification, Neo4j Certified Professional*
- May 19th 2016 *Certificate of Completion - Introduction to R, DataCamp*
- Nov 18th 2015 *Certificate of Achievement - Introduction to Data Analysis using R, Big Data University*
- Nov 3rd 2015 *Certificate of Achievement - Introduction to NoSQL and DBaaS, IBM - Big Data University*
- Oct 28th 2015 *Certificate of Achievement - Spark Fundamentals II, IBM - Big Data University*
- Jul 30th 2015 *Certificate of Achievement - Introduction to Solr, IBM - Big Data University*
- Jun 1st 2015 *Certificate of Achievement - Big Data Fundamentals, Big Data University*
- May 23th 2015 *Certificate of Achievement - Introduction to MapReduce Programming, IBM - Big Data University*
- May 19th 2015 *Certificate of Achievement - Hadoop and the Amazon Cloud I, Big Data University*
- May 19th 2015 *Certificate of Achievement - Hadoop and Fundamentals I, IBM - Big Data University*

Selected Honors and Awards

- **Best Minimum Viable Products Award 2019** – Fred E-hack Smart City Hackathon organized by The City of Fredericton and eleven-x
- **MITACS Accelerate Fellowship 2019** – in partnership with Rimot Inc., Acadia University, and Dalhousie University
- **Eugene E. Derenyi Graduate Academic Achievement Award 2018** – UNB
- **School of Graduate Studies Travel Award 2017** – University of New Brunswick
- **Graduate Research Assistantship 2016-2020** – University of New Brunswick
- **Graduate Academic Assistantship 2016-2020** – Cisco/NSERC IRC
- **International graduate differential fee scholarship 2016-2020** – UNB
- **UCD Research Scholarship 2014-2015** – University College Dublin
- **Irish Aid IDEAS Scholarship 2014-2015 (Strand II - Technical Area)** – Department of Foreign Affairs and Trade - Government of Ireland
- **Annual scholarships for outstanding students 2006-2011** – UIT
- **Scholarship for excellent students 2007** – SKT-SSU IT Training Center (Vietnam), sponsored by SK Telecom and Soongsil University (Korea)