Son N. Nguyen

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Technical interests

Find a challenging position requires machine learning or deep learning skills.

Education

Ph.D. in Electrical Engineering   **Graduated: August 2019**
The University of Texas at Arlington, Arlington, TX
Bachelor of Telecommunications Engineer   **Graduated: May 2012**
Post and Telecommunications Institute of Technology, Hochiminh City, Vietnam

Technical Skills

Algorithms and software development: Using Python(PyTorch, Tensorflow, pandas), MATLAB, C.
Machine Learning: **Deep Learning,** Convolutional Net, AutoEncoder, AWS EC2
Computer Vision, Human detection, object matching
Data Mining, Hadoop MapReduce
Embedded Microcontroller, 32-bit ARM cortex architecture

Research Experience and Projects

- **Balanced Gradient Algorithm, (**Ph.D. dissertation)**.**
  Scalable second order training algorithm for **deep** and shallow, **CNNs** and fully connected neural networks.
- **License Plate Recognition System for IPNNL**.
  The system locates and segments license plates and uses a neural network to recognize plate numbers.
- **Backpropagation with two learning factors**
  A novel method [1] that uses two learning factors in traditional Backpropagation.
- **Apply Newton's Method to Feed Forward Neural Networks**,
  Newton's method was used to train Feed Forward Neural Network that dramatically improves convergence speed. Results were submitted in [4].
- **Newton's method applied in Deep Autoencoder**
  Make Autoencoders converge faster using mutiple optimal learning factor, different learning factors are used in different hidden layers.

Work and teaching experience

- **TMA Solutions, Vietnam** Software Engineer,   April 2012-June 2013
  Software quality assurance for Globe Telecom, Manila, Philippines. System Integrated Tester (SIT), assure quality and behavior of Ordering Management System (OMS) and Amdocs Activation Manager (AAM).
- **University of Texas at Arlington** Graduate Teaching Assistant   June 2015-May 2019
  Assisted professors in DSP and Embedded Microcontroller graduate classes with over 50 students.

Awards and honors

- **Vietnam Education Foundation (VEF) fellowship**, cohort 2013. Sponsored and funded by the U.S. government, the fellowship brings Vietnamese students to the U.S. to study graduate programs. I am one of the 40 chosen students in 2013.
- **University of Texas at Arlington, Doctoral Assistantship**. The assistantship funds most of the tuition and living expenses of Ph.D. students.
- **Summer 2019 dissertation fellowship.** The fellowship funds all of the tuition and living expenses for my last semester as a Ph.D. student.

Publications

[1] **Son Nguyen,** K.Tyagi, and M.T.Manry, "Partially Affine Invariant Back Propagation." The 2016 International Joint Conference on Neural Networks (IJCNN 2016), IEEE, Vancouver, Canada, July 2016.

[2] S.Auddy, K.Tyagi, **Son Nguyen** and M.T.Manry, "Discriminant Vector Transformations in Neural Network Classifiers" The 2016 International Joint Conference on Neural Networks (IJCNN 2016), IEEE, Vancouver, Canada, July 2016.

[3] P.Kheirkhah, K.Tyagi, **Son Nguyen**, and M.T.Manry, "Structural adaption for sparsely connected MLP using Newton's method." The 2017 International Joint Conference on Neural Networks (IJCNN 2017), IEEE, Anchorage, AK, USA, May 2017.

[4] **Son Nguyen**, M.D.Robinson, M.T.Manry, "Multistep Newton Training in Feedforward Neural Networks." *Neural Processing Letters* (Under review).

[5] K.Tyagi, **Son Nguyen**, R.Rawat, M.T.Manry, "Second-order training and sizing for the multilayer perceptron." *Neural Processing Letters* (Accepted, under revision).

[6] **Son Nguyen**, M.T.Manry, "Balanced gradient training in back propagation." *Neural Processing Letters* (In preparation)