Hy Truong Son

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Research Interest Machine Learning and Computer Vision.

Education

Eötvös Loránd University September 2013 - July 2016 (expected)
Budapest, Hungary
BSc. Computer Science
GPA: **4.98/5** (in Hungary scale), **3.984/4** (in US scale)
Sponsor: Stipendium Hungaricum Full Scholarship from the Government of Hungary

Vietnam National University 2012 - 2013
Hanoi, Vietnam
BSc. Computer Science

High School for Gifted Students
Hanoi University of Science 2008 - 2011
Hanoi, Vietnam
Specialized: Informatics

Work Experience

Neural Information Processing Group (NIPG) Undergraduate Research Student
Eötvös Loránd University April 2014 – Present
Website: http://nipg04.inf.elte.hu/
Working under the supervision of Prof. Lőrincz András with main focus on facial analysis and sparse coding learning algorithms.

High School for Gifted Students Tutor
Hanoi, Vietnam August 2012 – July 2013
Helped selected high school students prepare for National Excellent Student Contest in Informatics by teaching data structures and algorithms, and solving problems from previous contests.

Publications

Thesis: Semi-supervised Adaptive Facial Tracking Method Spring 2015
1^{st} position in the Information Technology section at the 32^{nd} National Conference of the Students' Scientific Association.
Thesis: http://people.inf.elte.hu/hytruongson/OTDK-Thesis-2015.pdf
Presentation: http://people.inf.elte.hu/hytruongson/OTDK-Presentation-2015.pdf

Poster: Fast Estimation of the Kernel Group LASSO Summer 2015
Zoltán ádám Milacski, **Son Truong Hy**, Balázs Pintér and András Lőrincz
Machine Learning Summer School, Kyoto University
Poster: http://people.inf.elte.hu/hytruongson/Kyoto-2015.pdf

Awards

The title of Excellent Student of the Faculty Academic year 2014 - 2015
Awarded to 2 BSc. students (less than 1%) of the Faculty of Informatics with outstanding academic performance and scientific activity at the Eötvös Loránd University.

Stipendium Hungaricum Full Scholarship from the Government of Hungary 3 years
Duration: From September 2013 to September 2016.
Cover: Tuition fee and living expenses.

The 1st position at the National Conference of the Students' Scientific Association
April 2015
Thesis: *Semi-supervised Adaptive Facial Tracking Method.*

Morgan Stanley Scholarship 2015
Amount: 75,000 HUF.
The sponsor Morgan Stanley in Hungary awarded this scholarship to the second prize of the student scientific research competition at the Faculty of Informatics.

The 2nd position at the 2014 Hungarian ACM Programming Contest October 2014
Team: ELTE-UFMG-UFPB, runner-up prize, ranked 2 out of 33 teams nationwide.
Final result: http://people.inf.elte.hu/bzsr/acm/r2014.htm

The 7th position at the 2012 ACM-ICPC Asia Regional Contest November 2012
Team: DiscreteMath, consolidation prize, ranked 7 out of 59 teams from Asia.
Final result: https://icpc.baylor.edu/regionals/finder/hatyai-2012/standings

Special prize at the NAPROCK 4th International Programming Contest 2012
Location: Omuta, Japan.

Silver Cup at the Vietnam Olympic of University Students in Informatics 2012
Division: Super Cup (the highest level).

Runner-up prize at the National Excellent Student Contest in Informatics 2011
Note: National programming contest for high school students in grade 12.

Research Projects

(NIPG) Fast Sparse Coding Learning by Recurrent Neural Network Fall 2015
Estimation the performance of Recurrent Neural Network among Rectified Linear Units (ReLU), thresholded ReLU, parametric ReLU and classical sigmoid function, on the problem of learning structured sparse representation. The experiment is conducting with the air handwriting data of 6D Motion Gesture Database (6DMG).

(NIPG) Fast Estimation of the Kernel Group LASSO Summer 2015
Extended the Learned Iterative Shrinkage Thresholding Algorithm (LISTA) - a fast neural network introduced by Gregor and LeCun - to speed up the Kernel Group LASSO on the problem of learning structured sparse representation. We tested our method in time series classification by training on the 6DMG database while utilizing the Global Alignment kernel.

(NIPG) Learned Iterative Shrinkage-Thresholding Algorithm Spring 2015
Reproduction the work of LeCun and Gregor - LISTA algorithm in Matlab.
My source code in Matlab: https://github.com/HyTruongSon/LISTA

(NIPG) Semi-supervised Adaptive Facial Tracking Method Fall 2014 - Spring 2015
Extension of Supervised Descent Method and the Online Pseudo-Inverse Update Method to adapt and personalize unseen facial data without labelled ground-truth from human interaction. Highly accurate results with fast adaptation process for real time application were achieved. The algorithm was tested on BinghamtonPittsburgh 4D Spontaneous Expression (BP-4DSFE) database.

(NIPG) Generation of 2D Multiple Head-pose Facial Images from 3D Database
Summer 2014
To address the limitation of small and discrete head poses, from 3D meshes and textures of BP-4DSFE database, a software using the Unity graphical library was created, which can rotate 3D facial models and the corresponding landmarks in many head poses and then project it again into 2D images. The newly generated database contains 200,000 two-dimensional images from 13,120 three-dimensional models.

(NIPG) An SVM Approach to Facial Emotions Classification Summer 2014
The facial emotions were classified by the state-of-the-art machine learning technique Support Vector Machine (SVM). Facial features were extracted by applying Histogram of Oriented Gradients - HOG descriptor - proposed by Dalal and Triggs in their CVPR 2005 paper - in the areas around the facial landmarks. The method was tested on the Extended Cohn-Kanade Dataset (CK+) and Denver Intensity of Spontaneous Facial Action (DISFA) database.

Other Projects

Multi-Layer Perceptron (MLP) Library in Java
Supports stochastic and batch learning process with sigmoid activation function, learning through Back-propagation.
My source code in Java: https://github.com/HyTruongSon/MLP-Java

Personal Face Recognition
Apply MLP on The ORL database of faces of AT&T Laboratories, Cambridge which contains

40 subjects (10 different images for each one). MLP can get more than 95% accuracy.
My source code in Java: https://github.com/HyTruongSon/Personal-Face-Recognition-ANN

Genetic Algorithm to solve Travelling Saleman Problem (TSP)
For the class Artificial Intelligence in Spring 2014. Tests with VLSI Data Sets and refers to the paper A Fast TSP Solver Using GA on JAVA.
My source code in C++: https://github.com/HyTruongSon/Genetic-Algorithm-TSP

RSA File Encryption
Supports RSA key generation, file encryption, file decryption, Fermat prime test, (Specific) Rabin Miller prime test, Sieve of Atkin, Sieve of Sundaram, Sieve of Erastosthene.
My source code in Java: https://github.com/HyTruongSon/RSA-Java

Qualifications

Programming Languages: C/C++, Java, Matlab, Haskell, Ada, Pascal, SQL, PL/SQL, HTML/CSS.

Libraries: STL, OpenGL, LaTeX.

Tools: Netbeans, Eclipse, Codeblocks, Dev-C++, Microsoft Visual Studio, Microsoft Office.