TUNG HOANG

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EDUCATION

University of Illinois at Chicago (UIC), Chicago, IL
Doctor of Philosophy in Applied Mathematics, GPA: 3.73/4.0 *August 2017*
Master of Science in Computer Science, GPA: 3.8/4.0 *May 2017*
Master of Science in Pure Mathematics, GPA: 3.92/4.0 *May 2011*
Selected courses: Machine Learning, Data Mining and Text Mining, Artificial Neural Network, Artificial Intelligence I, Database Systems, Computer Systems, Operating Systems, Software Design with Java, Statistical and Probability Theory, Computer Algorithms I and II, Computational Geometry, and Graph Theory.
Honors Program, Vietnam National University, Hanoi, Vietnam
Bachelor of Science in Mathematics, GPA: 3.7/4.0 *May 2006*

RELATED RESEARCH/PROJECTS

RESEARCH AND COURSE PROJECTS, UIC, Chicago, IL *2014-present*

- **RSA Encryption/ Decryption:** Designed and implemented a fast algorithm to encrypt data using public key and decrypt data using private key. Built user-defined BigInt class to hold big integers, with methods for fast multiplication, division, greatest common divisor, modulo, exponentiation. Written in **Java**.
- **Machine Learning - Robotic Arm Dynamic Re-Training:** Designed and modified an adaptive classifier using Linear Discriminant Analysis for a single degree of freedom without affecting the accuracy or control performance for the remaining degrees of freedom in an upper limb prosthetic device. Achieved 98% accuracy. Written in **Matlab**.
- **Object Oriented Design:** Designed and implemented Monopoly game. Included 2 major components: (1) back end with classes to model players and different kinds of locations and functionalities on the game board and (2) front end with a model of the game with user interaction. Leveraged inheritance and polymorphism in OOP. Written in **Java**.
- **Netflix Database**: Designed a database containing Netflix's movies information. Updated, deleted, inserted data into the database using **C++**. Analyzed data to extract important information such as top reviewed, top average rating, top users. Implemented another version using .NET framework: used **ADO.NET** to access the database, built GUI form of the application using **C#**. Improved the application using **N-tier** design. Updated the database using Transaction, allowing rollback if errors encountered. Written in **C++/ C#/ SQL**.
- **Swype**: Designed and implemented an algorithm to generate a best guess with top 3 most popular alternatives from a *swype* on a QWERTY keyboard. Searched for words based on matches of the first and last characters, minimum length and appearance of all characters. Implemented another version using **F#**. Written in **C++/ C#**.
- **Planar Graph Determination**: Devised a naive algorithm to determine whether or not a given graph is planar using Kuratowski's theorem. Improved linear-time algorithm for planarity testing. Written in **C/ C++**.

RESEARCH ASSISTANT IN BIOINFORMATICS, UIC, Chicago, IL *2012-present*

- Applied Artificial Neural Network (**ANN**) to detect protein-coding and non-coding regions within DNA sequence. Designed and implemented **P**ower **S**pectrum - **M**oment method to classify genomes and genes using Discrete Fourier Transform (DFT) and power spectrum. Performed cluster analysis to analyze biological sequences using **PS-M**, improved speed up to 15 times while keeping accuracy on several cases. Written in **Matlab/ Python/ R.**

SKILLS

- *Proficient:* Java, Matlab, C, C++, F#, SQL, C#, ADO.NET, Threading.
- *Prior experience:* Python, SAS, R, HTML5, CSS, JavaScript, Linux Shell Script, Parallel Programming.

AWARDS/ ACTIVITIES

- Yeuk-Lam Yau-Leung Memorial Scholarship *2017*
- Certificate of Peer Facilitator at the 2015 International TA Orientation at UIC *2015*
- Coordinator of International Football Club at UIC *2011- present*
- Student Travel Award for FNFYT, CIMPA *2010, 2012*
- Vietnam Education Foundation Scholarship *2009*
- Scholarship of Rencontres du Vietnam *2006*
- National Mathematics Olympiad Gold Medal, Ministry of Education and Training, Vietnam Mathematics Society (rank 2/400) *2002*