Junwei Jason Zhang

Personal Data

Address: 6 Middle LN, Stony Brook, NY, 11790
Phone: +631 416 9263
email: junweizhang23@gmail.com

Education

December 2017 PhD in Applied Mathematics and Statistics, **Stony Brook University**
| Major: Computational Mathematics
GPA: 3.4/4.0

May 2013 Master Degree **University of Florida**
| Major: Computer Engineering
GPA: 3.4/4.0

Fall 2009 Double Bachelor Degrees in **Shandong University**
| Major: Computer Science and Mathematics
GPA: 3.5/4

Computer Skills and Research Field

Basic Knowledge: c++ Java Python php, Mysql,PostgreSQL,HTML,Matlab,Linux,Hadoop
Research Field: Computer Vision, Computer Graphics, Machine learning, Hadoop

Scholarships and Certificates

Sept. 2013 Special CS Department Chair Fellowship, Stony Brook, New York
Sept. 2011 Achievement Award of Computer Information Science and Engineering
June 2009 Innovative Scholarship of Shandong University for Outstanding Thesis
December 2008 First Prize of China Mathematics modeling contest in Applied Mathematics
December 2007 First Prize of China Mathematics modeling contest in Applied Mathematics

University of Florida Research and Project Experience

Spring 2013 | Summer Intern at Ocoos.com

During the internship, I develop the website front end using Sencha, PHP and Zend framework. I also write the whole PHP testing program through PHPUnit

Fall 2012 | 2012 KDD (Knowledge discover and data mining) Cup Recommendation System of Blog

Input data is over 17,000,000 user behavior records. Output is the products or famous stars which are recommended to users. I first clean the input data, for example formatting the input data, deleting the "zombie" data. I cut the whole data set into 10 different categories and utilize the k-fold cross-validation method to establish the learning model. Use the K-nearest-neighbor method to find the highest relative recommendation item

Spring 2012 | Map-Reduce scheme algorithm in Weather forecast

Input data is collected by the Florida government; Output result the weather forecast; I use the Map-Reduce framework to process the whole pipeline. I first clean the data. The map function is computing the specific location weather situation based on the nearby weather data. The reduce function is computing the next step's result based the previous result. I have tested my Map-Reduce algorithms result on 4*4, 8*8,32*32, 64*64 multi-core HPC computation center.

Stony Brook University Research and Project Experience

Current

Volume Preserving Mesh Parameterization Based on Optimal Mass Transportation

Input data is the $3D$ volume data; Output is the volume mesh parameterization result; I utilize spherical conformal mapping to cast the surface of original model to sphere; I compute the $3D$ harmonic volume tetrahedron structure and calculate $3D$ optimal mass transport mapping between the harmonic solid mesh and the target solid mesh.Especially, the final result is volume preservation result, which roots in the firm mathematics theory.

Fall 2015

Area-preserving Mesh Parameterization for Poly-Annulus Surfaces Based on Optimal Mass Transportation

Input the mesh with multi-boundary of genus zero surface; Output is the parameterization of these complex surfaces; I use the Ricci Flow to cast the original mesh to unit circle. I use $2D$ area-preserving method to compute the optimal mass transport mapping between the original mesh and the target measure mesh and then get the final parameterization result.

Spring 2015

Dentist Teaching Android App for Stony Brook University Dentist School

Input is the 3D teeth model; Output the Android app. You can find my app in Teeth Demo

Spring 2015

Graph Representation Using Combinatorial Hodge Theory

Input is the planar graph, for example USA train Map; Output is the square titling representation of this USA train Map; I first use the SIFT and Delaunay method to establish the triangulation of original graph.And then I use the combinatorial Hodge algorithm to translate triangulation mesh to square titling graph.

Summer 2014

Space Filling Curves for 3D Sensor Networks with Complex Topology

Input data is the massive sensor geographic location. Output are dense curve which link most sensors in one line. I use holomorphic one form to establish the branch covering algorithm, finally getting the dense curve covering result.

Fall 2013

Non-Rigid Image Registration with Markov Random Field

Input data is the source image and the target image.Output are the morphing process and the corresponding feature registration result. I establish the Markov Random Field energy function between them and use the Tree-Re-weighted-Message passing techniques to get an approximate minimum value.