


Nianzu Yang

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Education

Shanghai Jiao Tong University

Major in Computer Science, IEEE Honor Class

September 2019 – April 2021

Shanghai, China

- GPA : 85.7/100
- Core Courses : Discrete Mathematics (96), Linear and Convex Optimization (93), Information Theory (93), Programming (91), Introduction to Engineering for Electronic Information (B) (96)

Research Interests

Database, Machine Learning, Information Retrieval, Recommendation System

Publications

- Yuanning Gao, Jinbiao Ye, **Nianzu Yang**, Xiaofeng Gao, Guihai Chen. “A Middle Layer Based Scalable Learned Index Scheme”. Accepted by *Ruan Jian Xue Bao/Journal of Software*.
- **Nianzu Yang**, Zhixian Yang, Yuanning Gao, Xiaofeng Gao, Guihai Chen. “NETR-Tree: An Efficient Framework for Social-Based Time-Aware Spatial Keyword Query”. Submitted to IEEE INTERNATIONAL CONFERENCE ON WEB SERVICES. 2020 .

Research Experiences

Advanced Network Laboratory, Shanghai Jiao Tong University

Research Assistant

Advisor : [Prof. Xiaofeng Gao](#)

April 2019 – Present

Shanghai, China

Project I : A Middle Layer Based Scalable Learned Index Scheme

- Integrated the data access patterns into the neural network during the training phase, which can improve the prediction accuracy of the model for hotspot data.
- Borrowed the idea of LSM tree, i.e., delay update mechanism, which greatly improved the data writing speed.
- Proposed a middle layer based mechanism for model decoupling in the index update phase, thus easing the problem of index updating cost.
- Conducted extensive experiments and demonstrated the effectiveness and efficiency of our model is better than the state-of-the-art methods.

Project II : An Efficient Framework for Social-Based Time-Aware Spatial Keyword Query

- Formulated the problem of Social-based Time-aware Spatial Keyword Query (STSKQ), which takes geo-spatial score, keywords similarity, visiting time score, and social relationship effect into consideration.
- Proposed a hybrid index structure, i.e., NETR-tree that exploits network embedding and efficient pruning strategies to tackle STSKQ.
- Conducted experiments and showed our framework outperforms the state-of-the-art algorithms for processing STSKQ on real-world datasets.

★ Projects

Deep Neural Network for Sentiment Analysis Based on Self-attention Mechanism

- Improved [the DeepMoji Model](#) (if you are interested in it, you can click here to know about it) utilizing self-attention mechanism.
- Verified its efficiency when transferred into other target tasks, i.e., good scalability in transfer learning.

Modified Version of Shazam utilizing CNNs and Unsupervised Deep Embedding

- Pretrained a supervised model to predict a given audio's category based on CNNs.
- Pretrained another unsupervised model for prediction by virtue of deep embedding clustering.
- Improved searching efficiency of Shazam through reducing the number of candidates, according to category.

Fundamental Music Retrieval System

- Crawled abundant data from the Internet and established a music retrieval system.
- Made the system be able to play music and demonstrate the real-time lyrics, besides support retrieval.

Student Service Center Website

- Built a functional website for teachers in Student Service Center.
- Setted up a login system to give permission only to teachers to operate back-stage managements.
- Allowed other students' visiting the website to do operations with limited rights.

Virtual SJTU

- Constructed a 3D SJTU campus by virtue of Unity3d and 3D Studio Max.
- Designed a role-playing game based on the virtual 3D environment we established.
- Allowed that the incoming students can experience life in school and get familiar with the roads in advance.

★ Activities

Student Service Center, Shanghai Jiao Tong University

Vice-minister

April 2018 – April 2019

Shanghai, China

- Assisted teacher in providing services to all students in the school, designed school-level activities and undertook the responsibility of checking the qualification of winning a scholarship.

Shanghai International Half Marathon & Shanghai International Full Marathon

Volunteer

April 2018 & November 2018

Shanghai, China

- Provided replenishment, assistance and first aid for the participators.

★ Skills

Adept in Programming Languages : C, C++, Python, PHP, HTML, C#, SQL, JavaScript

Adept in Softwares : Microsoft Office, Adobe Premiere, Unity3d

Adept in Sports : Table Tennis, Jogging, Baseball