Chaofan Tao

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"Let us solve problems larger than ourselves!"

Education

University of Electronic Science and Technology of China **985, 211, Double First Class**
Major: Mathematics and Physics Basic Science *Sept 2016 - Present*

Experimental Class, Yingcai Honors College (Elite College of **top 2%** students)
Website: http://www.yingcai.uestc.edu.cn GPA: 3.98/4.00 Avg. score: 90.51/100
Interdisciplinary backgroud in Mathematics, Computer Science and Physics
Mathematics: probability and statistics, stochastic processes, linear algebra, advanced algebra and geometry, advanced calculus i, ii, iii, abstract algebra, combinatorial mathematics, discrete mathematics, functions of complex variables, computational methods, mathmatical modeling.
Computer Science: data structure, algorithm analysis and design, database fundamental, Advanced Programming, Operating System, foundations of circuits and electronics illustrated, basic academic training, engineering practice innovation project.
Physics: quantum machanics, theoretical machanics, electrodynamical mechanics, thermodynamics and statistic physics, atomic physics, university physics i, ii, physical innovation project.

Honours and Awards

- Outstanding Student Scholarship, top 10% in the Elite College, Year 2018
- 2nd Prize in Mathematical Contest and Interdisciplinary Contest in Modeling, top 20%, Year 2018
- Recommendation Letter of Management Programme, National University of Singapore, top 5%,Year 2018
- Outstanding Student Scholarship, top 10% in the Elite College, Year 2017
- 2nd Prize in the Undergraduate Physics Knowledge Competition in Sichuan Province, top 2%, Year 2017
- Prize for finishing National University Student Marathon League, top 10%, Year 2017

Publications

- **Chaofan Tao**, Fengmao Lv, Lixin Duan and Min Wu. "Minimax Entropy Network: Learning Categorical-Invariant Features for Domain Adaptation", arXiv:1904.09601v2, 2019.
- Yi Bin, Yang Yang, **Chaofan Tao**, Zi Huang, Jingjing Li and Heng Tao Shen. "MR-NET: Exploiting Mutual Relation for Visual Relationship Detection", AAAI-19 (CCF A tier, acceptance rate in 2019: 16.2%).

Research Experience

Vehicle Intention Prediction with Social Modeling **Shanghai, P.R.China**
Research Intern with Qinhong Jiang, at SenseTime *Jul. 2019 - Present*

- SenseTime is an AI unicorn valued over 3 billion USD. It's the fifth China's National Open Innovation Platform for Next-Generation Artificial Intelligence.
- Study on the image-level and video-level vehicle intention prediction for self-driving cars.
- Take the social model (e.g. socialGAN) into consideration to explicitly model the intention prediction further.

Learning Categorical-Invariant Features for Domain Adaptation **Chengdu, P.R.China**
Research Assistant with Prof. Lixin Duan, at Data Intelligence Group *Nov. 2018 - Mar. 2019*

- Proposed a novel method for unsupervised domain adaptation by adversarially injecting target categorical knowledge into the model in a teacher-student setting.
- The proposed model enjoys a concise framework and a clear training procedure, which is effective and efficient.
- Implemented all the experiments in the proposed method and obtained improved performance against state-of-the-art transfer learning methods.

Exploiting Mutual Relation for Visual Relationship Detection **Chengdu, P.R.China**
Research Assistant with Prof. Yang Yang, at Center for Future Media *Feb. 2018 - Oct. 2018*

- Co-proposed an intuitive algorithm for visual relationship detection by exploiting mutual relation in a siamese network and incorporating semantic information in the model .
- Formulated objective functions and conducted part of experiments (preprocessing, object detection et al).
- Visualized our comparable results and writed part of the paper.

Multi-Clue based Representation Learning for Doctors Clustering **Chengdu, P.R.China**
Research Assistant with Prof. Yang Yang, at Center for Future Media *Sept. 2017 - Jan. 2018*

- Proposed a method to mitigate the problem of data sparsity for doctors clustering by utilizing various types of clue (e.g. rating number and comment text) .
- Crawled various types of data and built an auto-encoder for discriminative representation learning.

Research Projects

Mathematical Contest In Interdisciplinary Contest In Modeling **Chengdu, P.R.China**
Team leader in competitions, Awarded 'Honorable Mention' *Nov. 2017 - Feb. 2018*

- Project 1: Evaluation on Climate-based Fragile State Index Project
- Project 2: The Dynamic Path Planning of Drone Clusters Based on the Improved Artificial Potential Field
- Project 3: Measuring the Evolution and Influence in Society's Information Networks Project
- Project 4: An Evaluation System for Smart Growth of a City

Assessment of Undergraduates' Stress Level Based on Data Mining **Chengdu, P.R.China**
Team lead in a psychological data-analysis project *Feb. 2018 - Jun. 2018*

- Evaluate the level of mental stress in undergraduates and analyse factors that contribute to it by principal component analysis and entropy weight method.

Using Algorithm in Machine Learning for Feature Learning **Chengdu, P.R.China**
Intern at Center for Future Media, UESTC *July. 2017 - Sept. 2017*

- Finished Stanford Unsupervised Feature Learning and Deep Learning (Stanford-UFLDL) tutorials
- Finished corresponding code assignments, including data dimension reduction, stacked auto-encoder, image preprocessing, regression, etc.

Design of Anti-lost Tracker for Tracking Monitored Items **Chengdu, P.R.China**
Team member of a 3-people team in competition *Mar. 2018 - Sept. 2018*

- Made contributions to design an anti-lost tracker with wireless communication chips in Undergraduates Innovation and Entrepreneurship Competition.
- Won a prize of 1500 RMB (top 15%).

Fire Alarm Circuit Based on Temperature with Tunable Sensitivity **Chengdu, P.R.China**
Course project for Analog Circuits *April. 2018 - June. 2018*

- Designed a the circuit that keeps silent and provide no visual signal in normal circumstance. Once the temperature reach an abnormal value, the circuit rings the buzzer and light the LED.
- The sensitivity or the temperature threshold could be easily tuned through adjusting the variable resistor.

Skills and English Test

Programming: C, C++, Python, Matlab, SQL, Shell
Tools: Mathcad, Multisim, Jupyter, SPSS, Latex
English: IELTS: 7.5 (R:8.5 L:8.5 W:6.5 S:6.0), GRE: 321 + 3