CHUNLEI ZHANG

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SUMMARY

Objective:	Seeking a full-time position as an applied/data/research scientist
Fluent skills:	Python (NumPy, pandas, Matplotlib, scikit-learn), Spark, Matlab, R, Git, Latex, SQL
Familiar skills:	Python (Keras, Tensorflow), Java

EDUCATION

Clemson University, South Carolina, USA Aug 2015 - Dec 2019
Ph.D. in Electrical Engineering and Minor in Mathematics GPA: **4.0/4.0**
Beihang University, Beijing, China Sep 2011 - Jul 2015
Bachelor of Engineering in Electronic and Information Engineering GPA: **3.9/4.0; Top: 5%**

WORK EXPERIENCE

Amazon, Inc. Applied Scientist Intern
Explore Goods Availability into Search Relevance and Ranking Model May 2019 - Aug 2019

- Analyzed and visualized differences of customer purchase behavior and data distribution regarding availability across holiday/non-holiday and different categories
- Proposed two approaches to reduce unavailability rate (UR) in TopK search results which will go into production. One approach reduced around 4% UR on average and another reduced 10% UR during offline experiments
- Created a temporal feature into ranking model, resulting in a 8% UR reduction during holiday

DATA SCIENCE PROJECTS

Clemson University
Regression Analysis of Blood Enzyme Levels and a Health Indicator Sept 2018 - Nov 2018

- Applied Variance Inflation Factor (VIF) to check the potential multicollinearity within 100 kinds of blood enzyme
- Fitted models based on correlation, Stepwise Regression, Ridge Regression and LASSO with proper penalty parameters
- Conducted hypothesis test to determine the model suitability based on p-value
- Selected the most appropriate model based on Akaike Information Criterion (AIC) and cross validation results

Regression Analysis of Local Meteorology and Air Pollution Aug 2018 - Oct 2018

- Fitted linear models using forward stepwise, backward stepwise, bidirectional stepwise, and Lasso regression
- Visualized the standardized residual plot, QQ-plot, and ACF plot of each model to check the linear regression assumptions
- Conducted Box-Cox Transformation to transform non-normal dependent variable into a normal shape

RESEARCH EXPERIENCE

Clemson University Research Assistant
Research on Decentralized Optimization Algorithms Jan 2017 - Present

- Designed two novel algorithms which enabled data privacy-preservation in decentralized optimization based on Alternating Direction Method of Multipliers (ADMM) and Subgradient Method
- Implemented the ADMM-based algorithm on twelve Raspberry Pi boards in C++

Research on Application of Decentralized Optimization Sep 2015 - Dec 2016

- Proposed two distributed localization algorithms based on ADMM and proved the convergence rates are $O(1/k)$
- Compared the proposed algorithms with some existing localization algorithms via Matlab simulations, which suggested a 15% performance improvement in localization accuracy

PUBLICATIONS

[7] **C. L. Zhang**, Y. Q. Wang, Privacy-preserving Decentralized Optimization based on ADMM. *IEEE Transactions on Information Forensics and Security 14.3 (2019): 565-580.*

[6] **C. L. Zhang**, Y. Q. Wang, Distributed event localization via alternating direction method of multipliers. *IEEE Transactions on Mobile Computing 17.2 (2018): 348-361.*

[5] **C. L. Zhang**, Y. Q. Wang, Enabling Privacy-preservation in Decentralized Optimization. Accepted to *IEEE Transactions on Control of Network Systems*

[4] **C. L. Zhang**, Y. Q. Wang, Sensor Network Event Localization via Non-convex Non-smooth ADMM and Augmented Lagrangian Methods. Accepted to *IEEE Transactions on Control of Network Systems.*

[3] H. Gao, **C. L. Zhang**, M. Ahmad, Y. Q. Wang. Privacy-Preserving Average Consensus on Directed Graphs Using Push-Sum. *IEEE Conference on Communications and Network Security, 2018.*

[2] T. Shang, **C. L. Zhang**, K. Li, J. W. Liu, Nonlinear quantum network coding with classical communication resource. *IEEE Globecom Workshops, 2015.*

[1] **C. L. Zhang**, H. Gao, Y. Q. Wang. Enabling Privacy-preservation in ADMM based Decentralized Optimization using Function Decomposition. Submitted to *IEEE Transactions on Signal Processing.*

AWARDS

Chinese Government Award for Outstanding Self Finance Students Abroad	2018
Harris Award for the Outstanding Graduate Researcher	2018
Scholarship of Excellent Academic Performance of Beihang University	2011-2014
National Endeavor Fellowship of China (10%)	2012-2013
Academic Excellence Student of Beihang University (5%)	2012-2013