

Tunan Wang

📍 4200 University Ave., 402, Madison, WI 53705 ✉ tunan.wang@wisc.edu ☎ +1 734-492-2371

🌐 Personal website 🔄 Tuna2222

Education

BS	Shandong University	09/2016 - 06/2020
	• Bachelor of Science, major in Statistics, School of Mathematics	
MS	University of Michigan	08/2021 - 04/2023
	• Master of Science, major in Applied Statistics, Department of Statistics	
Ph.D.	University of Wisconsin-Madison	08/2023 -
	• Major in Computer Science, School of Computer, Data & Information Sciences	

Research & Internship Experience

University of Wisconsin-Madison , advised by Prof. Vivak Patel	Madison, WI U.S. 12/2023 -
<ul style="list-style-type: none"> I am investigating the operational mechanisms of non-smooth conditions within conventional optimization methods in deep learning. To be specific, the current gradient calculation can be wrong at certain non-smooth points, our work is to come up with a strategy to fix these errors. Understanding current optimization techniques used in estimating parameters for large-scale Gaussian Mixture Models and innovating by developing stochastic adaptations of pertinent algorithms. 	
University of Michigan , advised by Prof. Albert S. Berahas	Ann Arbor, MI U.S. 07/2022 -
<ul style="list-style-type: none"> Developing an adaptive method on distributed optimization settings. To be specific, we are developing a kind of stochastic variant (w.r.t. constraints) of SQP (sequential quadratic programming) which can solve distributed problems without manually setting any hyperparameters. 	
Tianjin University , Part-time RA in the associate professor Runliang Dou's group	Tianjin China 09/2020 - 03/2021
<ul style="list-style-type: none"> Research on the topic of operation research and management, take part in the Industrial Big Data Competition on the topic of "prediction of reservoir's flow of hydropower station". 	
First Capital Securities Co., Ltd. , Summer intern at Company Business Department	ShenZhen, Guangzhou China 07/15/2019 - 09/13/2019
<ul style="list-style-type: none"> Prepared the reception meeting, recorded the conversations with customers, made systematic investigation and evaluation reports based on the company's public information, sorted out the indicators of real estate companies according to the rating report of rating company, wrote internal rating report of the company and daily bond price changes report 	
Shandong University , Undergraduate Science and Technology Innovation Fund Project	Jinan, Shandong China 05/2018 - 05/2019
<ul style="list-style-type: none"> Group leader of 4-person research group Used traditional N-W Kernel Regression to process the data with an outlier, then added L1, L2 Regularization and regularized Huber loss function to the original Algorithm to make the outcome with higher robustness and alleviate the overfitting problem. The results show that the curve draw by the Algorithm which used Huber loss function and regularized with L1 regulation has better sparsity and runs faster than the others 	
China Securities Co., Ltd. , Summer intern at Fixed Income Department	Beijing China 07/16/2018 - 08/31/2018
<ul style="list-style-type: none"> Collected data information of bond market and prepared summary report; as- 	

sisted to complete special reports and in-depth reports on credit debts; prepared meeting reports and bond issuance notice, drafted contracts, etc.

Projects

R package PertGD

[PertGD](#) 

- We implement four gradient-based methods which can escape from saddle point quickly. They are “Perturbed Gradient Descent”, “Perturbed Accelerated Gradient Descent”, “Faster Perturbed Gradient Descent”, and “Faster Perturbed Accelerated Gradient Descent”.
- Role: Developer
- Language Used: R

Julia package RLinearAlgebra

[RLinearAlgebra.jl](#) 

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- Role: Maintainer & Developer
- Language Used: Julia

Course project optimization

[github.com/name/repo](#) 

- Understanding popular optimization tools
- Language Used: Matlab

Teaching

Teaching assistant, University of Wisconsin-Madison

- CS 220, Data Science Programming I (Fall 2023, Spring 2024)
- CS 320, Data Science Programming II (Fall 2024)

Skills

Languages: Python, Julia, Matlab, R

Technologies: Optimization algorithm developer

- Resume explain the idea easily and address the social importance.
- Do not use too long sentence and separate the bulletpoint into several different ones.
- DO not use I/me/we, just use verb.
- Combine two courses and explain the course, expand.
- Expand the sections, maybe add one section of Language.