TRI NGUYEN

nguyetr9@oregonstate.edu github.com/ductri tri-nguyen-cs 541 360 9255

EDUCATION

Ph.D. in Computer Science, Oregon State University — Corvallis, OR, US 2020 - Expected 2025
GPA: 3.85/4
Relevant courses: Matrix Analysis, NLP with Deep Learning, Estimation, Statistical Learning, Machine Learning.

Bachelor of Computer Science, Ho Chi Minh City University of Technology — Vietnam 2012 - 2017
Gifted program.
GPA: 8.72/10 (Top 10 in Computer Science and Electrical Engineering department).

PUBLICATIONS

- **[ICML] T. Nguyen**, S. Ibrahim, and X. Fu. *Deep Clustering with Incomplete Noisy Pairwise Annotations: A Geometric Regularization Approach.* International Conference on Machine Learning, 2023.
  - Analyzed the MLE-based loss for training an image-classifier given noisy incomplete binary pairwise labels.
  - Achieved top accuracy on CIFAR10, STL10, Imagenet10 and outperformed the second best method by 10-20% by optimizing our proposed regularized loss function using the ResNet-50 as the backbone architecture.

  deep clustering | noisy labels | identifiability

- **[ICLR]** S. Ibrahim, **T. Nguyen**, and X. Fu. *Deep Learning From Crowdsourced Labels: Coupled Cross-Entropy Minimization, Identifiability, and Regularization.* International Conference on Learning Representations, 2023.
  - Proposed and analyzed a regularized coupled cross entropy loss which improved 3% accuracy on average compared to baseline methods with noisy labels from noisy crowdsourced annotations.

  classification | crowdsourced labels | identifiability

- **[TSP] T. Nguyen**, X. Fu, and R. Wu. *Memory-Efficient Convex Optimization for Self-Dictionary Separable Nonnegative Matrix Factorization: A Frank-Wolfe Approach.* Trans. Sig. Proc. 70 (2022), 3221–3236.
  - Proposed and analyzed the Frank-Wolfe algorithm in addressing the self-dictionary learning problem to offer a linear complexity in memory in contrast to the quadratic complexity of other baselines.

  NMF | memory | optimization

RELATED EXPERIENCE

Graduate Research Assistant Mar 2020 - Present
Prof. Xiao Fu, Oregon State University, *Corvallis, OR*

- Performed research projects on topics including deep learning, identifiability of matrix/tensor decomposition, convex optimization, and statistical learning that has resulted in 3 publications in top-tier conferences and journals.
- Presented one topic every quarter in internal reading group meetings, including diffusion, minimax analysis, causal inference, reinforcement learning, and statistical learning to enrich our group's research topics and analysis toolbox.

AI Engineer Feb 2017 - Jan 2020
YouNet Group *Ho Chi Minh City, Vietnam*

- Lowered manual workload of social media research team from 65% to 40% by implementing an LSTM-based models to perform sentiment classification on text and building a training pipeline on continuously growing data.
- Reduced 100 support requests/week from the business analysis team by building a web-based retrieval application supporting highly customizable search syntax and offering advanced operators such as 'not', 'and', 'or', '*'.
- Formulated an equation to determine reliable sample size essential for the business analysis team's work.

COURSEWORK PROJECTS

Matrix Analysis for Signal Processing and Machine Learning

- Tackled the community detection problem with tensor decomposition, and empirically demonstrate the superior of Tucker decomposition over CPD decomposition under this setting.
- Tensorlab, Matlab.

Natural Language Processing with Deep Learning

- Proposed to tackle the sentiment manipulation problem using the idea from unsupervised machine translation and treating sentiment classes as different languages.
- Pytorch, Python.

Convex Optimization

- Proposed the Gauss-Newton method to perform Canonical Polyadic decomposition given a tensor.
- Derived a computationally efficient algorithm and demonstrated performance against baselines on synthetic data.
- Matlab

PROGRAMMING LANGUAGES

- Python, Matlab, C++.
- PyTorch, TensorFlow, Git; Docker, Kubernetes, Hive/Impala, Kafka; SQL, Pandas, NumPy; Tmux, Vim, LaTeX.

PROFESSIONAL SERVICES

- Reviewer for IEEE Transactions on Signal Processing.
- Reviewer for 2022 IEEE International Conference on Acoustics, Speech and Signal Processing.
- Reviewer for 2022 IEEE Signal Processing Society.
- Reviewer for 2023 NeurIPS.

EXTRACURRICULAR ACTIVITIES

- Joined the badminton club at OSU in Fall 2022.
- Have been a tutor in TRiO SSS program at OSU in Fall 2023.
- Volunteer in STEM Outreach program to engage kids with hands-on experiments.