

Summer Research Experience Sharing

How to Find and Do Research as a Master's Student

Yixiao Wang

Department of Statistical Science
Duke University

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Yixiao Wang

✉ yixiao.wang@duke.edu

🌐 yixiao-wang-stats.github.io

in [LinkedIn](#)

🐙 [GitHub](#)

Education

- 2nd-year Master's Student in Statistical Science @ Duke University
- B.S. in Mathematics, School of the Gifted Young, USTC

Research Interests

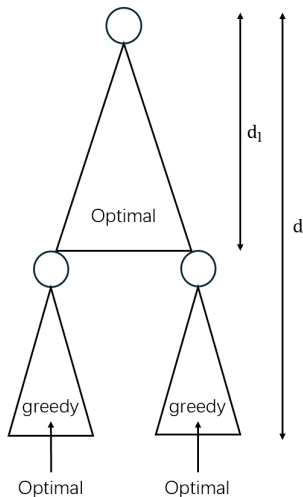
- Machine Learning Theory
- Deep Learning Theory

Research Experience

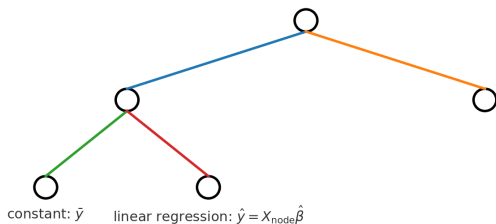
- Interpretable ML Lab @ Duke CS (ML)
- Anru Zhang's Group @ Duke CS (DL)
- Aditya's Group @ Wake Forest CS (ML)
- CEI @ Duke ECE (DL)

Research in Interpretable ML Lab (Duke CS)

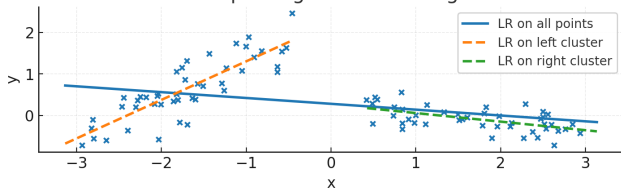
SPLIT framework: optimal prefix then greedy



Linear regression tree (constant and linear leaves)



Global vs per-segment linear regression



Balancing Two Projects

- Monday morning meeting (Project A) → work Fri–Sun
- Thursday afternoon meeting (Project B) → work Mon–Thu

Meeting Rhythm

- Main purpose: update mentor on progress
- Before meetings:
 - Organize results and prepare a short summary or slide (especially if professor attends, slides are highly recommended)
 - Don't worry if language is a barrier — translation tools are fine
 - Focus on showing effort and progress, not perfection (even “no progress this week” is normal!)

What You Need Before Starting Research

Academic Background

- Solid foundation in statistics and mathematics

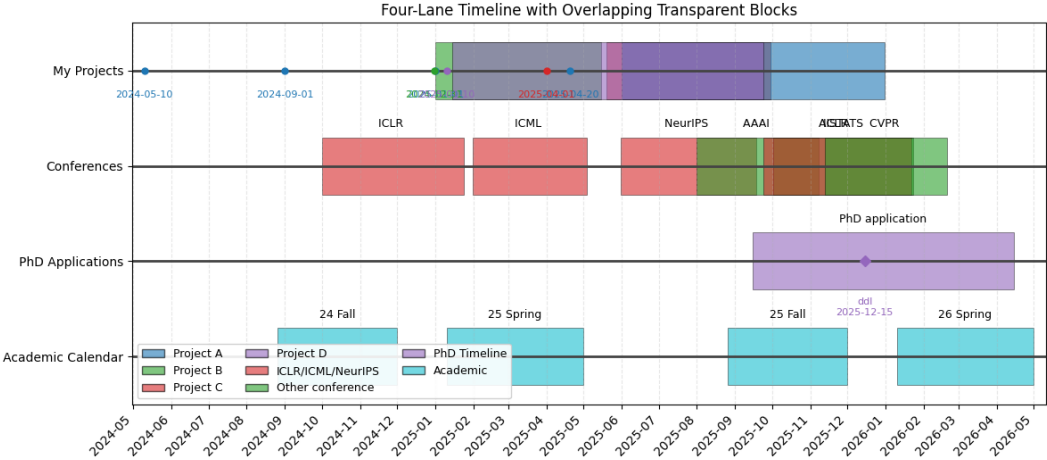
Technical Skills

- \LaTeX for writing papers and reports
- Python and C++ (R is also useful in statistics)

Application Materials

- A clear CV (and ideally a personal website)
- Transcript
- A polite cold email to potential mentors

Research Timeline



Curiosity drives discovery

Careful methods build trust

Evidence and logic first

Every obstacle is part of growth

Q&A