Shengqi Qiu

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Education

University of Wisconsin–Madison Madison, WI
B.S. in Mathematics (Honors) and Computer Science *Sep 2024 – Dec 2026*

- **GPA: 3.634/4.000**

Skills

- **Languages:** English (fluent), Mandarin (native).
- **Programming Languages:** Java, Python, C++/C, CSS, JavaScript, R, Bash, Assembly(LC-3)
- **Mathematics:** Probability, Stochastic Processes, Topology, Abstract Algebra, Commutative Algebra, Linear Algebra, Mathematical Analysis, Numerical Analysis.
- **Technologies:** PyTorch, TensorFlow, NumPy, Git

Research Experience

Undergraduate Researcher with Professor Frederic Sala's Lab Feb 2026 – Present
Program-As-a-Judge Automated Model Assessment (Pajama)

- Worked with PhD **Tzu-Heng Huang** on Program-As-a-Judge Automated Model Assessment (**Pajama**)
- Developed **programmatic judges** that distill LLM judging logic into executable Python functions for low-cost, high-throughput, and transparent LLM evaluation.
- Calibrated and aggregated noisy program outputs through **weak supervision** to generate reliable preference labels.
- Evaluated **Pajama** across multiple preference datasets and reward-model distillation settings, demonstrating strong accuracy–throughput tradeoffs and substantially reduced labeling cost.

Undergraduate Researcher with Professor Benedek Valko Jan 2026 – Present
Madison Experimental Mathematics Lab (MXM)

- Collaborated with a team of three undergraduates on exact identities for Sine_β pair correlations in **Random Matrices** and **Point Processes**.
- Developed Mathematica code to symbolically eliminate auxiliary variables from the Gaussian β-ensemble ODE system and derived a single high-order ODE for the pair correlation function.
- Recovered explicit formulas for the Sine_β two-point correlation function for $\beta = 2, 4$, and independently developed an operator-factorization approach toward the $\beta = \mathbf{6}$ case.

Undergraduate Researcher with Professor Grigorios Chrysos Oct 2025 – Apr 2026

- Investigated **Lipschitz-based robustness verification** for **Transformer** models under discrete text perturbations.
- Derived a **spectral-norm Jacobian bound** for dot-product self-attention as a step toward extending certified robustness methods beyond convolutional text classifiers.

Relevant Coursework

- **Honors Courses in Math:** MATH 541 *Modern Algebra I*, MATH 542 *Modern Algebra II*, MATH 521 *Analysis I*, MATH 522 *Analysis II*, MATH 551 *Elementary Topology*, MATH/CS 514 *Numerical Analysis*.
- **Other Advanced Mathematics:** MATH 632 *Stochastic Processes*.
- **Computer Science:** CS 514 *Numerical Analysis*, CS 540 *Intro to AI*, CS 577 *Intro to Algorithms*, CS 639 *Intro to Foundation Models*.

Awards

Dean's List for Fall 2025