Nilava Metya

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Education

Rutgers, the State University of New Jersey - New Brunswick <div align="right">**Sep '22 – (expected) '27**</div>
Doctor of Philosophy in Mathematics | *CGPA:* 4.0/4.0
Master of Science in Mathematics | *CGPA:* 4.0/4.0 | ***2022 - '24*** <div align="right">*Piscataway, New Jersey, USA*</div>
  passed written qualifying exams in first attempt just before program started

Chennai Mathematical Institute <div align="right">**Aug '19 – May '22**</div>
Bachelor of Science (Honours) in Mathematics and Computer Science | *CGPA:* 9.72/10 <div align="right">*Chennai, Tamil Nadu, India*</div>
  Third (out of 55 students), completed degree requirements in 2.5 years

Relevant Coursework

- Quantum Computation
- Matrix Computations
- Differential Equations
- Haskell, Python
- Object Oriented Programming
- Algorithm Design + Analysis

- Discrete Mathematics
- Automata Theory
- Lambda Calculus
- Newtonian, Lagrangian, Hamiltonian mechanics

- Sheaves and Schemes^{Princeton}
- Probability^{Rutgers}
- Data Mining^{Rutgers}
- Convex Optimization^{Princeton}
- ML Theory^{Rutgers}

Publications/Preprints

1. DePaul, Hoşten, **Metya**, Nometa. Degrees of the Wasserstein distance to small toric models. *Journal of Algebraic Statistics*

Projects/Experience

Distributionally Robust optimization over dynamical systems | *with A Sinha* <div align="right">**current**</div>

Distributionally Robust Games | *with B Gangwani and A Sinha* <div align="right">**current**</div>

Protein symmetry prediction (with certificate) | *Data Science Bootcamp at the Erdös Institute* <div align="right">**Feb - Apr '24**</div>

Inference on growth process of a network | *Data Mining course* <div align="right">**Sep - Dec '23**</div>

Principal Components along Quiver representations | *Computational Topology course* <div align="right">**Sep - Dec '23**</div>

Selection/Attendance in conferences/workshops

Princeton Machine Learning Theory Summer School | *Summer School* | Princeton <div align="right">**Aug '24**</div>

Frontiers in Complexity Theory: A Graduate Workshop | *Workshop* | DIMACS, Rutgers, NB <div align="right">**July '24**</div>

Efficient Algorithms for High Dimensional Metrics | *Workshop* | DIMACS, Rutgers, NB <div align="right">**May '24**</div>

Bayesian Statistics and Statistical Learning | *Workshop* | IMSI, Chicago <div align="right">**Dec '23**</div>

Algebraic Statistics for Ecological and Biological Systems | *Workshop* | IMSI, Chicago <div align="right">**Oct '23**</div>

Apprenticeship Week: Varieties from Statistics | IMSI, Chicago <div align="right">**Oct '23**</div>

Invitation to Algebraic Statistics and Applications | *Workshop* | IMSI, Chicago <div align="right">**Sep '23**</div>

Permutation and Causal Inference: Connections and Applications | *Workshop* | IMSI, Chicago <div align="right">**Aug '23**</div>

Algebraic Methods in Biochemical Reaction Networks | *Workshop* | MPI, Leipzig <div align="right">**Jun '23**</div>

Honours and Awards

Nominated by Rutgers Math department for SLMath summer school **Jun '23**
Summer school at Leipzig - awarded full travel funding. Only two students from Rutgers Math were fully funded by SLMath.

Academic Excellence Award at Rutgers **Sep '22**
Received a certificate and $100 based on performance in Written Qualifying Exams.

Shriram Scholarship at CMI **'19 – '22**
Received institutional fee waiver and monthly stipend (based on entrance exam).

Ranked 4th nationally at the *Bachelor of Statistics* (B.Stat.) entrance examination of ISI **'19**
Indian Statistical Institute (ISI)

Selected among (approx) top 100-130 school students in India in *Zonal Informatics Olympiad* **'17, '18, '19**
*Selected among (approx) top 100-130 school students in India in *Zonal Informatics Olympiad* (ZIO).*

Selected for Indian National Mathematical Olympiad Training Camp among 30 students in West Bengal. **Jan '18**
*Selected for *Indian National Mathematical Olympiad* (INMO) *Training Camp* | top 30 school students in West Bengal.*

Tara and Jasubhai Mehta Fellowship for PROMYS **'18, '19, '20, '21**
*Awarded the *Tara and Jasubhai Mehta Fellowship* to PROMYS (among 5 Indian school students in 2018) based on a competitive process. Participated twice as a student ('18, '19) and twice as a counselor ('20, '21).*

Others
- Qualified for **International Collegiate Programming Contest** (ICPC) Kharagpur regionals and Amritapuri regionals in 2019 and secured rank 35 among (approx) 90 university teams at Kharagpur.
- Selected among top 30 students in India to participate in **Scholastic Test of Excellence in Mathematical Sciences** (STEMS) camp at CMI in 2018 (grades $9 - 12$ and across Math, Physics, Computer Science).
- Secured the **third position** in **Mathematics Talent Reward Programme** (MTRP) 2016, organized by ISI Kolkata.

Skills

Research	Optimization and AI/ML in game theory, mathematics of ML
Languages	Bengali (mother tongue), English (fluent), Hindi (fluent), German (beginner)
Tech	Python, C++, R, Haskell, MATLAB, JAVA, HTML, LaTeX, Microsoft Word, Unix
Relevant Courses	Optimization, Theoretical Machine Learning, Data Mining, Probability, Algorithms

Selected Teaching/Grading experience

Teaching Assistant / Grader | Rutgers **Sep '22 –**
TA/grader for undergraduate courses like calculus, topology, number theory, statistics, abstract algebra, real analysis

Instructor | Rutgers **Summer '23**
Instructor for the algebra qualifying exam preparation sessions required as a part of the PhD qualification.

Head Counselor at PROMYS India | IISc Bangalore **May – Jun '23**

Teaching Assistant | CMI **May '20 – May '22**
TA/grader for (under)graduate courses like linear algebra, discrete math, Haskell, probability, algorithms

Counselor at PROMYS | Boston University (online) **Jul – Aug '20, '21**

Counselor at PROMYS | Boston University **Jul – Aug '20, '21**

Counselor at PROMYS | Boston University **Jul – Aug '20**