

Dr. Raghunath Tewari

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RESEARCH INTERESTS	Computational Complexity Theory, Graph Theory, Kolmogorov Complexity, Algorithms, Quantum Computation, Network algorithms	
EDUCATION	University of Nebraska – Lincoln , Lincoln, Nebraska, USA Ph.D., Computer Science, March 2011 <ul style="list-style-type: none">- Dissertation Topic: <i>Unambiguous Logarithmic Space Bounded Computations</i>- Winner of the Outstanding Ph.D. Student Award given by the Dept. of Computer Science and Engineering at University of Nebraska – Lincoln- Advisor: Dr. Vinodchandran Variyam M.S., Computer Science, April 2007 <ul style="list-style-type: none">- Thesis Topic: <i>On the Space Complexity of Directed Graph Reachability</i>- Winner of the Outstanding Master's Award given by the Dept. of Computer Science and Engineering at University of Nebraska – Lincoln- GPA: 3.8/4 (with a GPA of 4/4 in theory subjects)- Advisor: Dr. Vinodchandran Variyam Chennai Mathematical Institute , Chennai, Tamil Nadu, India B.Sc., Honours in Mathematics and Computer Science, August 2005 <ul style="list-style-type: none">- GPA: 3.3/4 (with a GPA of 3.6/4 in Computer Science)	
EMPLOYMENT	<ul style="list-style-type: none">- June 2011 – present Lecturer, Department of Computer Science and Engineering, University of Nebraska – Lincoln.- June 2009 – May 2011 Research Assistant, Department of Computer Science and Engineering, University of Nebraska – Lincoln.- August 2005 – May 2009 Teaching Assistant, Department of Computer Science and Engineering, University of Nebraska – Lincoln.	
HONORS AND AWARDS	<ul style="list-style-type: none">- Outstanding Ph.D. Student Award, Dept. of Computer Science and Engineering at University of Nebraska – Lincoln.- Awarded \$1000 travel grant by the Dept. of Computer Science, University of Nebraska – Lincoln.- Outstanding Master's Award, Dept. of Computer Science and Engineering at University of Nebraska – Lincoln.- One of the selected candidates for the Preparing Future Faculty program at University of Nebraska – Lincoln.- One of the 30 students selected for the undergraduate program at Chennai Mathematical Institute through an entrance exam conducted all over India, with full scholarship.	
PUBLICATIONS	<i>Journal Publications</i> <ul style="list-style-type: none">- Green's Theorem and Isolation in Planar Graphs. (Joint work with N. V. VINODCHANDRAN.) <i>Information and Computation (under submission).</i>	

- **Space Complexity of Perfect Matching in Bounded Genus Bipartite Graphs.** (Joint work with SAMIR DATTA, RAGHAV KULKARNI AND N. V. VINODCHANDRAN.) Journal of Computer and System Sciences (*under submission*).
- **On the Power of Unambiguity in Logspace.** (Joint work with A. PAVAN AND N. V. VINODCHANDRAN.) Computational Complexity (*to appear*).
- **Directed Planar Reachability is in Unambiguous Logspace.** (Joint work with CHRIS BOURKE AND N. V. VINODCHANDRAN.) ACM Transactions on Computation Theory 1(1), 2009, pages 1-17.

Conference Publications

- **ReachFewL = ReachUL.** (Joint work with BRADY GARVIN, DERRICK STOLEE AND N. V. VINODCHANDRAN.) ECCO Technical Report 11-060. In *17th Annual International Computing and Combinatorics Conference* (*to appear*).
- **Perfect Matching in Bipartite Planar Graphs is in UL.** (Joint work with SAMIR DATTA AND RAGHAV KULKARNI.) (*under submission*)
- **Space Complexity of Perfect Matching in Bounded Genus Bipartite Graphs.** (Joint work with SAMIR DATTA, RAGHAV KULKARNI AND N. V. VINODCHANDRAN.) In Proceedings of the 28th International Symposium on Theoretical Aspects of Computer Science, pages 579-590, 2011.
- **Directed Planar Reachability is in Unambiguous Logspace.** (Joint work with CHRIS BOURKE AND N. V. VINODCHANDRAN.) In Proceedings of the 22nd Annual IEEE Conference on Computational Complexity, pages 217-221, 2007.
- **Optimal Segment Size for Fixed-sized Segment Protection in Wavelength-routed Optical Networks.** (Joint work with BYRAV RAMAMURTHY.) In *IEEE International Symposium on Advanced Networks and Telecommunication Systems (ANTS). December 2009.*, pp. 1-3.

Technical Reports

- **Unambiguous Logarithmic Space Bounded Computations.** *Doctoral Dissertation, University of Nebraska-Lincoln, March 2011.*
- **On the Space Complexity of Directed Graph Reachability.** *Master's Thesis, University of Nebraska-Lincoln, May 2007.*

PRESENTATIONS

- *Space Complexity of Perfect Matching in Bounded Genus Bipartite Graphs.* At the 28th International Symposium on Theoretical Aspects of Computer Science, Dortmund, Germany, March 2011.
- *Greens Theorem and its Application to the Isolation Problem in Planar Graphs.* At the Computer Science Departmental Colloquium, University of Massachusetts-Amherst, September 2010.
- *Space Complexity of Directed Graph Reachability.* At the Discrete Math Seminar in the Mathematics Department at UNL, September 2007.
- *Directed Planar Reachability is in Unambiguous Logspace.* At the 22nd Annual IEEE Conference on Computational Complexity, San Diego, USA, June 2007.

RESEARCH EXPERIENCE

- Research Assistant for Dr. Vinodchandran Variyam from June 2009 to May 2011.
- Visited Prof. Meena Mahajan at Institute for Mathematical Sciences and Dr. Samir Datta at Chennai Mathematical Institute during summer 2008 and worked on certain problems in circuit complexity.
- Visited Prof. Eric Allender at Rutgers University during summer 2010 to work on a problem in circuit complexity. (Work still in progress)

TEACHING EXPERIENCE

- Data Structures and Algorithms, **CSE 310.** (Summer 2011)
Taught this class with full responsibility (designed and conducted lectures, homework and exams).
- UNIX Programming, **CSE 251.** (Summer 2011)

- Taught this class with full responsibility (designed and conducted lectures, homework and exams).
- Course on Advanced Complexity Theory, **CSE 990**. (Spring 2011)
Co-taught the course with Dr. Vinodchandran Variyam.
- C Programming, **CSE 251K**. (Spring 2009)
Conducted this course with full responsibility (designed and conducted lectures, homework and exams).
- MATLAB Programming, **CSE 150**. (Fall 2008)
Responsibility consisted of conducting labs and grading.
- Problem Solving in C, **CSE 105**. (Spring 2007)
Taught this class with full responsibility (designed and conducted lectures, homework and exams).
- Data Structures and Algorithms, **CSE 310**. (Spring 2009, Fall 2007)
Taught recitation which consisted of discussing problems, explaining certain concepts and conducting quizzes. Also conducted some lectures.
- Data Structures and Algorithms, **JDE 283**. (Fall 2008, Fall 2007, Fall 2006, Fall 2005)
Full responsibility for grading. Also conducted some lectures.
- Design and Analysis of Algorithms, **CSE 423/823**. (Spring 2007, Spring 2006)
Job consisted of grading, preparing questions for homework and quizzes and preparing solutions.

PROFESSIONAL

SERVICE AND SKILLS

- Reviewed papers for IEEE Conference on Computational Complexity (CCC) and Foundations of Software Technology and Theoretical Computer Science (FSTTCS).
- Department representative at the Graduate Student Association at UNL.
- Member of the selection committee for the CSE Award Ceremony 2011.
- Student representative at the CSE Graduate Recruiting Committee.
- Successfully qualified through the Institute for International Teaching Assistants at UNL.
- Proficient in programming languages including C, C++, Java, Haskell and MATLAB.

REFERENCES

1. Dr. Vinodchandran Variyam
Associate Professor and Susan Rosowski Professor
Department of Computer Science and Engineering
University of Nebraska – Lincoln
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2. Dr. Eric Allender
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3. Dr. Neil Immerman
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4. Dr. A. Pavan
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