

# ARA HAYRAPETYAN

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## OBJECTIVE

I am looking for an internship position for the summer of 2006.

## RESEARCH INTERESTS

My research interests lie in theoretical computer science and center around (1) the design and analysis of algorithms for large networks and (2) the study of economic behavior in networks with strategic users. My current research focuses on:

- Quantifying the influence that strategic user behavior has on the resulting network.
- Devising approximation algorithms for network design problems.

## EDUCATION

- 2002 - present: Cornell University, Ithaca, NY  
Ph.D. student in the Department of Computer Science.  
Advisor: Éva Tardos.  
Thesis Committee: Éva Tardos, Jon Kleinberg, David Shmoys and Radu Ruzica.
- 2000 - 2002: Rice University, Houston, TX  
B.S. in Computer Science, May 2002.  
*Summa Cum Laude*
- 1999 - 2000: University of Houston, Houston, TX
- 1997 - 1999: Yerevan State University, Yerevan, Armenia

## PROFESSIONAL EXPERIENCE

- 2002 - present: Cornell University

As a graduate student in the Department of Computer Science at Cornell University, I worked on a variety of problems in Algorithmic Game Theory and Approximation Algorithms. A list of relevant publications can be found below.

I also served as a teaching assistant for a sophomore level discrete mathematics course (Fall 2002), a senior level course on the design and analysis of algorithms (Spring 2003) and a graduate level algorithms class (Fall 2005).

- 2000 - 2002: Rice University

During my last two years at Rice University, I worked in the field of bioinformatics under the supervision of Lydia Kavradi. The specific problem I was working on was protein motion analysis and dimensional reduction of protein trajectories.

I also served as a teaching assistant for a sophomore level discrete mathematics course (Spring 2001) and a junior level course on programming languages (Fall 2001).

- 1999 - 2000: University of Houston

At University of Houston, I was involved in research in theoretical programming languages, more specifically in finding efficient algorithms for testing decidability of ground rewrite systems.

## PUBLICATIONS

- Ara Hayrapetyan, Éva Tardos and Tom Wexler - “The Effect of Collusion in Congestion Games”. To appear in ACM Symposium on Theory of Computing (STOC), 2006.
- Ara Hayrapetyan, David Kempe, Martin Pál and Zoya Svitkina - “Unbalanced Graph Cuts”. European Symposium on Algorithms (ESA), 2005.
- Ara Hayrapetyan, Éva Tardos and Tom Wexler - “A Network Pricing Game for Selfish Traffic”. ACM SIGACT-SIGOPS Symposium on Principles of Distributed Computing (PODC), 2005. Selected for publication in the special edition of the journal Distributed Computing.
- Ara Hayrapetyan, Chaitanya Swamy and Éva Tardos - “Network Design for Information Networks”. ACM-SIAM Symposium on Discrete Algorithms (SODA), 2005.
- Rakesh Verma and Ara Hayrapetyan - “A New Decidability Technique for Ground Rewrite Systems with Applications”. ACM Transactions on Computer Logic (TOCL), 2005.

## INVITED TALKS

- Institute for Operations Research and Management Sciences (INFORMS). “A Network Pricing Game for Selfish Traffic”, San Francisco, CA, November 2005.
- ACM SIGACT-SIGOPS Symposium on Principles of Distributed Computing (PODC). “A Network Pricing Game for Selfish Traffic”, Las Vegas, NV, July 2005.
- ACM-SIAM Symposium on Discrete Algorithms (SODA). “Network Design for Information Networks”. Vancouver, BC, January 2005.
- Cornell University Theory Seminar. “Network Design for Information Networks”. Cornell University, November 2004.

## OTHER ACTIVITIES

- Organized the Theory Discussion Group, Department of Computer Science, Cornell University, 2003-2005.
- Coached the Cornell University Programming teams for the ACM regional and world final contests. Helped organize the local Cornell Programming Contest, 2003-2004.
- Participated in the ACM regionals as a member of the Cornell Team. Was selected as a reserve in the Cornell team that went to the world finals in Hollywood, CA, 2003.

## HONORS AND AWARDS

- Rice University President’s Honor Roll, 2000, 2001, 2002.
- Samuel T. Sikes, Jr. Scholarship in Engineering, 2001.
- Elected member of the National Society of Collegiate Scholars, inducted in 2000.
- Various diplomas/medals for successful participation of many national (Armenian) and international mathematics and computer science competitions during my undergraduate and high school years.

## PERSONAL INFORMATION

Born in Yerevan, Armenia on 06/23/1981.

US Citizen.