

## Curriculum Vitae

Gyan Ranjan

Email: granjan [at] cs.umn.edu

### CURRENT POSITION

- PhD candidate, Dept. of Comp. Science and Eng., Univ. of Minnesota, Twin Cities.
- Research Assistant, Spring '09 - Ongoing.

### RESEARCH INTERESTS

- Structural analysis of complex networks using algebraic graph theory.
- Machine learning based approach to mobile/cellular network data analysis, user mobility patterns, geo-localization and anomaly detection.
- Datacenter topology analysis.

### CURRENT PROJECTS

- Analyzing human behavior and application access patterns with respect to mobility.
- Design of robust infrastructure networks, Defense Threat Reduction Agency (DTRA) grant.

### EDUCATION

- Master of Science (2010), Comp. Science and Eng., Univ. of Minnesota, GPA 4.0.
- Bachelor of Technology (Honors) (2006), Comp. Science and Eng., Indian Institute of Information Technology, Hyderabad (India).

### WORK EXPERIENCE

- Research Intern, **Alcatel-Lucent Bell Laboratories**, NJ
  - Period of Employment: June '12 – August '12.
  - Project: Human mobility and application usage patterns in cellular networks.
- Research Intern, **Sprint Applied Research & Advanced Technology Labs**, Burlingame, CA.
  - Period of Employment: June '11 – December '11.
  - Project: Understanding human population mobility and context based behavior.
- Research Intern, **Nokia Research Center**, Palo Alto, CA.
  - Period of Employment: May '10 – December '10.
  - Project: A search based approach to geo-identity resolution of infrastructure in mobile networks.
- Junior Research Associate, **Software Engineering Technology Labs**, Infosys Technologies Ltd, Bangalore, India.
  - Period of Employment: July '06 – July '07.
  - Responsibilities: Business intelligence, process and program management.

### PREVIOUS INTERNSHIPS

- Research assistant, **Dept. of Science and Technology**, Govt. of India. Deployment and evaluation of mobile wireless sensor networks, March '06 – June '06.
- Research assistant, **National Institute for Smart Government**, Hyderabad, India. Field study and system evaluation of E-Procurement systems in the state of Andhra Pradesh, India, March '05 – June '05.

## PUBLICATIONS

### Journals:

- “Geometry of complex networks and topological centrality” – To appear in *Physica A, Elsevier*, 2012.
- “Commuter times for a directed graph using an asymmetric Laplacian” – *Linear algebra and its applications, Elsevier*, July 15, 2011.

### Conferences and Workshops:

- “On estimating hitting and commute times for large dense digraphs” – SIAM Annual Meeting (AN12), July 9-13, 2012.
- “Unveiling locations in geo-spatial documents” – *ACM SIG-SPATIAL GIS*, November 1-4, 2011.
- “On the von Luxburg approximation for hitting and commute times in large dense digraphs” – *IMA workshop on Large Graphs: Modeling, Algorithms and Applications*, October 24-28, 2011.
- “How to glue a robust smart-grid? A finite-network theory for interdependent network robustness” - *7<sup>th</sup> Annual Cyber Security and Information Intelligence Research Workshop (CSIIRW '11)*, October 12-14, 2011.
- “A geometric approach to robustness in complex networks” – *Simplex 2011* workshop in conjunction with *IEEE ICDCS*, June 24, 2011.
- “Un-zipping cellular infrastructure locations via user geo-intent” – *IEEE Infocom mini-conference*, April 10, 2011.
- “Generalized Laplacians and first transit times for directed graphs” - *SIAM conference on applied linear algebra*, October 2009.
- “METASIS: A meta heuristic based logic optimizer” – *50<sup>th</sup> Midwest symposium on Circuits and Systems (MWSCAS '07)*, August, 2007.
- “A natural disasters management system based on location aware distributed sensor networks”, *IEEE Mobile Ad hoc and Sensor Systems conference (MASS '05)*, 2005.

## TEACHING EXPERIENCE

- Teaching Assistant (Operating Systems and Computer Networks), Dept. of Comp. Science and Eng., Univ. of Minnesota, Fall '07, Spring '08 and Fall '08.

## TECHNICAL SKILLS

- Programming languages: C, C++, Python, Visual Basic, Matlab/Octave.
- Operating Systems: Unix (Solaris, BSD, Linux), Win 32/NT.
- Databases: Postgres/PostGIS, MySQL.
- Programming platforms/ Frameworks: Django, Solr/Lucene, KDevelop, Gnome.

## REFERENCES

- Dr. Zhi-Li Zhang, Professor, Dept. of Comp. Science and Eng., Univ. of Minnesota.
  - Email: zhzzhang [at] cs.umn.edu
- Dr. Daniel Boley, Professor, Dept. of Comp. Science and Eng., Univ. of Minnesota.
  - Email: boley [at] cs.umn.edu
- Umesh Chandra, Research Leader, Nokia Research Center, Palo Alto, California.
  - Email: umesh.1.chandra [at] nokia.com