Gyan Ranjan

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Current Positions

Visiting Professor, **January 2016 – Present**

Dept. of Computer Science, University of California, Davis, CA (USA).

- **Graph and Network Theoretic Modeling**,

  ECS289I001, Fall 2016.

  Graduate level course in modeling real world problems using graph and network theoretic approaches. The course entailed not only the foundations of classical graph theory and its modern reincarnation - complex networks - but also provided insights into the various applications of these concepts to descriptive and predictive classification tasks.

- **Introduction to Data Science: A Practitioner's Approach**,

  ECS289K001, Winter 2016.

  Graduate level course, for an interdisciplinary audience, with a focus on developing foundational tenets of data science from first principles. The course took a project driven approach to data analysis and spanned a wide array of topics including non-parametric segmentation (clustering), graph and network theoretic approaches, Bayesian inference, regressions, support vector machines, decision trees and Neural Networks.

Senior Principal Data Scientist, Cyber Insurance, **January 2015 – Present**

Symantec Corporation, 350 Ellis Street, Mountain View, CA.

- **Responsibilities:** As the lead data scientist in the Cyber Insurance BU at Symantec, I am responsible for the design, implementation and maintenance of cross-product analytics for a suite of applications in the product portfolio; and the data pipeline that enables them. These include assessing security risk profiles for entities based on Symantec's global threat telemetry, in conjunction with independent data sources; as well as automated monitoring of real world events in post-breach scenarios.

Previous Positions

Senior Member of Technical Staff, CTO Office, **June 2013 – December 2014**

Narus Inc. (A wholly owned subsidiary of the Boeing Company), 570 Maude Court, Sunnyvale, CA (USA).

- **Responsibilities:** Automated classification of mobile application traffic, *in-the-wild*, at a per flow granularity to enable user, application and event sensitive policy formulation and enforcement. Developed two mutually complementary systems including an adaptive hierarchical rule generator and a search engine index for the classification tasks. The system scales to handle over a million applications from the iOS, Android and Nokia marketplaces and can operate at *line-speed*.

Junior Research Associate, SETLabs, **July 2006 – July 2007**

Infosys Technologies Ltd., Hosur Road, Electronics City, Bengaluru, KA (India).

- **Responsibilities:** Automated workflows for process and program management in a suite of business intelligence applications over a SOA-SOAP framework. These analytics were later integrated into the HP PPM product line and are widely deployed.

Education

Doctor of Philosophy, **May 2013**

Dept. of Computer Science and Engineering, University of Minnesota, Twin Cities, MN (USA).

Bachelor of Technology (Honors), **June 2006**

Dept. of Computer Science and Engineering, Indian Inst. of Information Technology, Hyderabad, AP (India).

Patents [Recent Filings]

- **Systems and Methods for Providing Computing Security by Classifying Organizations,**
  G. Ranjan and Nikhita Koul; September 2016 (Filed).
- **Systems and Methods for Determining Security Risk Profiles,**
  G. Ranjan; May 2016 (Filed).
- **Systems and Methods for Collecting Organization-Specific Media Events,**
  G. Ranjan; May 2016 (Filed).
- **Systems and Methods for Autom. Inferring Brand Reputation following Potentially Damaging Epochs,**
  G. Ranjan; May 2016 (Filed).
- **Systems and Methods for Automated Classification of Application Network Activity,**
  G. Ranjan and A. Tongaonkar**;** March 2016 (Filed).
- **Systems and Methods for Identifying Source Applications of Network Flows,**
  G. Ranjan, A. Tongaonkar, H. Yao, Y. Liao and Z. -M. Mao**;** December 2015 (Filed).
- **Mobile Application Identification in Network Traffic via a Search Engine Approach,**
  G. Ranjan, A. Tongaonkar and R. Torres**;** July 2014 (Filed).

Conference and Workshop Publications [Recent Papers]

- **Approximate Matching of Persistent Lexicon using Search-Engines for Classifying Mobile App Traffic,**
  G. Ranjan, A. Tongaonkar and R. Torres**;**
  Proc. of the 35th Annual IEEE Intl. Conf. on Computer Communications, IEEE INFOCOM, April 2016.
- **SAMPLES: Self Adaptive Mining of Persistent LExical Snippets for Classifying Mobile App Traffic,**
  H. Yao, **G. Ranjan,** A. Tongaonkar, Y. Liao and Z. -M. Mao**;**
  Proc. of the 21st Annual IEEE Intl. Conf. on Mobile Computing and Networking, ACM MobiCom, September 2015.
- **Computing the pseudo-inverse of a Graph's Laplacian using GPUs,**
  N. Saurabh, A. –L. Varbanescu and **G. Ranjan;**
  Proc. of the IEEE Large-Scale Parallel Processing Workshop, co-located with IEEE IPDPS, May 2015.
- **Per-User Policy Enforcement on Mobile Apps through Network Functions Virtualization,**
  A. Sapio, Y. Liao, M. Baldi, **G. Ranjan,** F. Risso, A. Tongaonkar, R. Torres and A. Nucci**;**
  Proc. of the 9th ACM Workshop on Mobility in the Evolving Internet Architecture, September 2014.

Journal Publications

- **Incremental Computation of Pseudo-Inverse of Laplacian: Theory and Applications,**

  G. Ranjan, Z. –L. Zhang and D. Boley**;**

  Lecture Notes in Computer Science, 8881:729-747, Springer, November 2014.

- **Geometry of Complex Networks and Topological Centrality,**

  G. Ranjan and Z. –L. Zhang**;**

  Physica A: Statistical Mechanics and its Applications, 392:3833-3845, Elsevier, May 2013.

- **Are Call Detail Records Biased for Sampling Human Mobility?**

  G. Ranjan, H. Zang, Z. –L. Zhang and J. Bolot**;**

  ACM SIGMOBILE Mobile Computing and Communications Review, 16(3):33-44, July 2012.

- **Commute Times for a Directed Graph using an Asymmetric Laplacian,**

  D. Boley, **G. Ranjan** and Z. –L. Zhang**;**

  Linear Algebra and its Applications, 435(2):224-242, Elsevier, July 2011.

Technical Skills

- **Programming Languages:** Python, Java, C, Matlab.
- **Databases:** Postgres, MySQL.
- **Operating Systems:** Unix (Solaris, BSD, Linux), iOS, Win 32/NT.
- **Others:** Solr/Lucene, Django, SVG, D3.js.

References

- **Dr. Xin Liu, Professor,**

  Dept. of Computer Science, University of California, Davis, CA (USA), **E-Mail:** *liu@cs.ucdavis.edu*.

- **Dr. Chen-Nee Chua, Professor,**

  Dept. of Elec. & Comp. Eng., University of California, Davis, CA (USA), **E-Mail:** *chuah@ece.ucdavis.edu*.

- **Dr. Beatriz Martinez-Lopez, Associate Professor,**

  Dept. of Vet. Medicine, University of California, Davis, CA (USA), **E-Mail:** *beamartinezlopez@cs.umn.edu*.

- **Dr. Zhi-Li Zhang, Professor,**

  Dept. of Computer Science & Eng., University of Minnesota, MN (USA), **E-Mail:** *zhzhang@cs.umn.edu*.

- **Dr. Antonio Nucci, CTO (Smart Services),**

  Cisco Systems Inc., CA (USA), **E-Mail:** *anucci@cisco.com*.

- **Dr. Alok Tongaonkar, Director,**

  Symantec Corporation, CA (USA), **E-Mail:** *alok_tongaonkar@symantec.com*.