Sal Aguinaga

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Research Interests

Complex network analysis, generative network modeling, knowledge discovery and data mining, machine learning, mobile computing, signal processing, and computational neuroscience.

Education

Ph.D. Candidate, **University of Notre Dame**, Computer Science and Engineering, expected: 2017

Dissertation Topic: Generative Network Models From Hyperedge Replacement Graph Grammars

Advisor: Tim Weninger

M.S., **University of Notre Dame**, Computer Science and Engineering, 2016

B.S., **Northern Illinois University**, Electrical Engineering, 1995

Professional Experience

2011 to present:	**PhD Candidate**, the Weninger Lab; Computer Science and Engineering
2013 to 2014:	**Mobile Design Consultant**, aBitofAlchemy, Mishawaka, IN; mobile app development; Responsibilities: design mobile apps in computer vision for color detection of chemical compounds
2008 to 2011:	**Staff Design Engineer**, Dhar Lab, Northwestern University; hardware, software and system development; Responsibilities: managing both product and small team of developers; software development of a C++ desktop app for audiology testing including the development of a research- grade audio amplifier and microphone calibration systems
2006 to 2008:	**Senior design engineer**, Motorola, Libertyville, IL; Mobile phone board-level hardware; Responsibilities: next generation phone platform design, validation, and prototyping (consumer market); chip-set validation, board design and signal integrity simulation
2003 to 2006:	**Research tech**, Electrophysiology, Dallos Lab, Northwestern University Responsibilities: electrophysiology recordings from cell-line and animal models
1997 to 2003:	**Hardware Eesign Engineer**, 3Com (Acquired by HPE), Rolling Meadows, IL; Telecomm (VoIP and modem design); Responsibilities: enterprise level VoIP system architecture design; intercommunication infrastructure (both, wired and optical) and application card design, validation, and prototyping
1995 to 1997:	**Jr. Hardware Engineer**, **VisionTek** (now VisionTek Product LLC), Gurnee, IL; Memory and hard-drive peripherals

Teaching and Student Mentoring

Spring 2017	Network Science, **Teaching Assistant**, undergraduate and graduate level course; University of Notre Dame
Spring 2013	Mobile Application Projects, **Teacher**, undergraduate & graduate levels, mobile computing focusing on iOS & Android platforms; University of Notre Dame
2012 & 2013	Summer Research Experience for Undergraduates in mobile computing
2016 Summer	Research Experience for Teachers, Data Science

Professional Memberships and Awards

2017:	Department of Energy Office of Science Graduate Student Research Award recipient; Argonne National Laboratory, Mathematics and Computer Science, Lemon, IL
2016:	Young Scientist 4th Annual Heidelberg Laureate Forum; selected and funded to attend as part of the US delegation; Heidelberg, Germany
2016:	Funding: Travel Award ACM SIGKDD (KDD2016)
2016:	Funding: Travel Award ACM SIGIR (CIKM2016)
2011 to present	Association for Computing Machinery (ACM)
2012 to present	Institute of Electrical and Electronics Engineers (IEEE)
2014:	2nd Place Schurz Communications Innovation Prize, University of Notre Dame, Data Mining

Publications

Computer Science Papers *(in reverse order by date)*

1. Aguinaga, S., Palacios, R., Chiang, D., and Weninger T., Growing Graphs with Hyperedge Replacement Graph Grammars. International Conference on Information and Knowledge Management (CIKM), Indianapolis, IN, October 2016

2. Nigam, A., Aguinaga, S., and Chawla, N. V., "Connecting the Dots to Infer Followers' Topical Interest on Twitter." Behavioral, Economic and Socio-cultural Computing (BESC), 2016 International Conference on. IEEE

3. Aguinaga, S., and Weninger, T., "The Infinity Mirror Test for Analyzing the Robustness of Graph Generators." arXiv preprint arXiv:1606.04412, 12th International Workshop on Mining and Learning with Graphs, San Francisco, CA, 2016

4. Aguinaga, S., Nambiar, A.,Liu, Z., and Weninger, T. "Concept hierarchies and human navigation." In Big Data (Big Data), 2015 IEEE International Conference on, pp. 38-45. IEEE, 2015.

5. Aguinaga, S., and Poellabauer, C. "Stealthy health sensing to objectively characterize motor movement disorders." Procedia Computer Science 19 (2013): 1182-1189.

6. Aguinaga, S. and Poellabauer, C. (2012, May). "Method for privacy-protecting display and exchange of emergency information on Mobile devices." In Collaboration Technologies and Systems (CTS), 2012 International Conference on (pp. 596-599). IEEE.

7. Yue, T. Janiw, A., Huus, A., Aguinaga, S., Archer, M., Hoefle, K., and Riek, L.D. "Creating Human-Robot Rapport with Mobile Sculpture." In Proceedings of the 7th ACM International Conference on Human-Robot Interaction (HRI), 2012

8. Aguinaga, S. and Riek, L.D. "Advances in Robotics and Computer Vision for Assistive Technology." In Proceedings of the 27th Annual International Technology and Persons with Disabilities Conference (CSUN), 2012

Manuscript under review

- Aguinaga, S, Chiang, D, and Weninger T, Learning Hyperedge Replacement Grammars for Graph Generation, Submitted to IEEE Transactions on pattern analysis and machine intelligence (2016)