Genya Ishigaki

Ph.D. Candidate
Advanced Networks Research Lab
Department of Computer Science
The University of Texas at Dallas
Email: gishigaki@utdallas.edu

Address: The University of Texas at Dallas
ECSS4.414
800 West Campbell Rd
Richardson, TX 75080-3021
Homepage: `http://genyajoe.github.io/`

Education

May 2021 (Expected) **Ph.D. in Computer Science** from The University of Texas at Dallas

Mar. 2016 **M.S. in Engineering** from Soka University, Japan **[GPA: 4.0]**
Department of Information Systems Science
Thesis: "On composing a resilient tree in a communication network with intermittent connections based on stress centrality"

Mar. 2014 **B.S. in Engineering** with honors from Soka University, Japan **[GPA: 3.95]**
Department of Information Systems Science
Thesis: "Distributed network flow optimization algorithm based on tie-set control with coloring"

Research Experience

Aug. 2020 - present **Research Intern** at TieSet Inc.

Aug. 2019 - present **Research Assistant** at The University of Texas at Dallas
Topic: Online learning for design and recovery of network slices

Apr. 2016 - Aug. 2016 **Graduate Researcher** at Soka University, Japan

Teaching Experience

May 2018 - Aug. 2019 **Course Instructor Teaching Assistant** at The University of Texas at Dallas
CS3305 Discrete Mathematics for Computing II

Aug. 2017 - Dec. 2017 **Teaching Assistant** at The University of Texas at Dallas
CS4390 Computer Networks (Prof. Zygmunt J. Haas)

Apr. 2014 - Mar. 2016 **Teaching Assistant** at Soka University, Japan
INFO251 Linear Programming (Prof. Teruaki Kitano)
INFO372 Graph Theory and Algorithms (Prof. Norihiko Shinomiya)

Research Interests

Survivability and recovery problems in layered networks, Online Convex Optimization, Deep Reinforcement Learning, Interdependent networks, Graph optimization algorithms, Network Function Virtualization

Relevant Courses

Algorithm: Combinatorics and Graph Algorithms, Design and Analysis of Computer Algorithms, Theory of Computation
Network: Advanced Computer Networks, Performance of Computer Systems and Networks, Algorithmic Aspects of Telecom Networks, Optical Networks, Advanced Optical Networks
Others: Machine Learning, Advanced Operating Systems, Game Theory

Selected Publications

Journals

1. **Genya Ishigaki**, Siddartha Devic, Riti Gour, Jason P. Jue, "*DeepPR: Progressive Recovery for Interdependent VNFs with Deep Reinforcement Learning*," IEEE Journal on Selected Areas in Communications - Special Issue: Advances in AI and ML for Networking, 2020 [Accepted].

2. Ashkan Yousefpour, Ashish Patil, **Genya Ishigaki**, Inwoong Kim, Xi Wang, Hakki C. Cankaya, Qiong Zhang, Weisheng Xie, Jason P. Jue, "*FogPlan: A Lightweight QoS-aware Dynamic Fog Service Provisioning Framework*," IEEE Internet of Things Journal, vol. 6, no. 3, pp. 5080-5096, June 2019.

3. **Genya Ishigaki**, Riti Gour, Jason P. Jue, "*Improving the Survivability of Clustered Interdependent Networks by Restructuring Dependencies*," IEEE Transactions on Communications, vol. 67, no. 4, pp. 2837-2848, April 2019.

4. Riti Gour, **Genya Ishigaki**, Jian Kong, Ashkan Yousefpour, Sangjin Hong, Jason P. Jue, "*Finding Survivable Routes in Multi-domain Optical Networks with Geographically Correlated Failures*," IEEE/OSA Journal of Optical Communications and Networking, Vol. 10, Issue 8, pp. C39-C49, 2018.

5. Ashkan Yousefpour, **Genya Ishigaki**, Riti Gour, Jason P. Jue, "*On Reducing IoT Service Delay via Fog Offloading*," IEEE Internet of Things Journal, Volume: 5, Issue: 2, April 2018.

Conferences

1. **Genya Ishigaki**, Siddartha Devic, Riti Gour, Jason P. Jue, "*DeepPR: Incremental Recovery for Interdependent VNFs with Deep Reinforcement Learning*," 2019 IEEE Global Communications Conference (GLOBECOM), Dec. 2019.

2. **Genya Ishigaki**, Riti Gour, Jason P. Jue, "*Improving the Survivability of Interdependent Networks by Restructuring Dependencies*," 2018 IEEE International Conference on Communications (ICC), May 2018.

3. Hideo Kobayashi, **Genya Ishigaki**, Riti Gour, Jason P. Jue, Norihiko Shinomiya, "*Embedding Chains of Virtual Network Functions in Inter-Datacenter Networks*" 2018 International Conference on Computing, Networking and Communications (ICNC), Mar. 2018.

4. **Genya Ishigaki**, Riti Gour, Ashkan Yousefpour, NorihikoShinomiya, Jason P. Jue, "*Cluster Leader Election Problem for Distributed Controller Placement in SDN*," 2017 IEEE Global Communications Conference (GLOBECOM), Dec. 2017.

5. Riti Gour, Jian Kong, **Genya Ishigaki**, Ashkan Yousefpour, Sangjin Hong, Jason P. Jue, "*Survivable Routing in Multi-domain Optical Networks with Geographically Correlated Failures*," 2017 IEEE Global Communications Conference (GLOBECOM), Dec. 2017.

6. Ashkan Yousefpour, **Genya Ishigaki**, Jason P. Jue, "*Fog Computing: Towards Minimizing Delay in the Internet of Things*," 2017 IEEE EDGE, Jun. 2017.

7. Hideki Shindo, Hideo Kobayashi, **Genya Ishigaki**, Norihiko Shinomiya,"*Multi-Leader Election in a Clustered Graph for Distributed Network Control*," 31st IEEE International Conference on Advanced Information Networking and Applications (AINA 2017), Mar. 2017.

8. **Genya Ishigaki**, Norihiko Shinomiya, "*On Composing a Resilient Tree in a Network with Intermittent Links Based on Stress Centrality*," 2016 IEEE Symposium on Computers and Communication (ISCC), Jun. 2016.

9. **Genya Ishigaki**, Norihiko Shinomiya, "*Controller placement algorithm to alleviate burdens on communication nodes*," 2016 International Conference on Computing, Networking and Communications (ICNC), Feb. 2016.

10. **Genya Ishigaki**, Norihiko Shinomiya, "*Distributed Network Flow Optimization Algorithm with Tie-set Control based on Coloring for SDN*," 2015 International Conference on Computing, Networking and Communications (ICNC), Feb. 2015.

11. **Genya Ishigaki**, Masao Yoshida, Norihiko Shinomiya, "*On maximizing tree reliability based on minimum diameter spanning tree*," 2014 IEEE Asia Pacific Conference on Circuits and Systems (APCCAS), Nov. 2014.

Grants and Fellowship

2019	**NSF Student Travel Grant for IEEE Globecom 2019**
2019 - 2021	**Scholarship for Ph.D. Study** Funded by Shigeta Education Foundation established by Mr. Y. Shigeta, the CEO of Hikari Tsushin
2016 - 2019	**Full Scholarship for Ph.D. Study** Funded by Japanese government through JASSO
2014 - 2016	**Scholarship for Master Study (Merit-based Exemption)** Funded by Japanese government through JASSO
2015	**NEC C&C Foundation Travel Grant**
2010 - 2014	**Tuition Scholarship** from Soka University, Japan

Honors and Awards

2018 - 2019	**Outstanding Teaching Assistant Award** from The University of Texas at Dallas As an instructor of CS 3305 Discrete Math II
2014	**Student Research Award** from Committee on Circuits and Systems of IEICE ES Society
Class of 2014	**Top Graduate of Dept. of Information Systems Science** from Soka University, Japan
2010 - 2014	**Honor Student** from Soka University, Japan

Professional Services

2018 - present	IEEE GCCE 2018 & 2019 Technical Program Committee
2017 - present	Peer reviewer for Optical Switching and Networking (Elsevier), IEEE Globecom 2017 - 2019, IEEE ICC 2018 - 2019, RNDM 2018, IEEE GCCE 2017 - 2019
2015 - present	IEEE Tokyo Young Professionals (YPs) committee

Certificates

Quantum Cryptography (A course of study offered by Caltech & DelftX)
Graduate Teaching Certificate (Center for Teaching and Learning, UT Dallas)

References

Jason P. Jue Ph.D.
Professor in Department of Computer Science at The University of Texas at Dallas

Norihiko Shinomiya Ph.D.
Professor in Faculty of Science and Engineering, Soka University