

# Genya Ishigaki

Ph.D. Candidate  
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Department of Computer Science  
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## Education

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- May 2021 (Expected)** **Ph.D. in Computer Science** from The University of Texas at Dallas  
**Courses:** Advanced Operating Systems · Design and Analysis of Computer Algorithms · Game Theory · Optical Networks · Performance of Computer Systems and Networks · Algorithmic Aspects of Telecom. Networks · Combinatorics and Graph Algorithms · Advanced Optical Networks · Theory of Computation · Advanced Computer Networks
- 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

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- 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

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- 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 (Dr. Zygmunt J. Haas)
- Apr. 2014 - Mar. 2016** **Teaching Assistant** at Soka University, Japan  
INFO161 Introduction to Programming with C I & II  
INFO251 Linear Programming  
INFO372 Graph Theory and Algorithms

## Research Interests

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

## Selected Publications

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### Journals

1. **Genya Ishigaki**, Siddhartha 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**, Siddhartha 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, Norihiko Shinomiya, 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

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

## Honors and Awards

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- 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

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- 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

## References

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### 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