

# CURRICULUM-VITAE

Senior Researcher

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## Academic Background:

Doctor of Philosophy in School of Electronic and Electrical Engineering (Embedded Systems & Control Engineering)

College/University: Kyungpook National University, Daegu, Korea

CGPA: 4.00/4.5      Year: March 2019 – February 2022

Thesis Title: A Study on Parameter Dependent Stabilization of Networked Control Systems with Variable Sampling

Supervisor: Prof. Sangmoon Lee, Professor

Master of Technology in School of Electronics Engineering (Embedded Systems & Control Engineering)

College/University: Kyungpook National University, Daegu, Korea

CGPA: 3.42/4.5      Year: August 2016 – February 2019

Thesis Title: Sampled-Parameter Dependent Stabilization of Linear Parameter Varying (LPV) Systems

Supervisor: Prof. Sangmoon Lee, Professor

Bachelor of Technology in Physics

College/University: Yeungnam University, Gyeongsan, Korea

CGPA: 4.06/4.5      Year: March 2010 – August 2016

Thesis Title: Research on Nano Patterning Technology using Self Assembly

Supervisor: Prof. Choi, Myoung-Seon, Professor

## Professional Experiences:

Senior Researcher in Korea Atomic Energy Research Institute

(Kijang Research Reactor Design and Construction Agency Division)

Duration: December 2022 – till date

Post-Doctoral Fellow in School of Electronic and Electrical Engineering

(Physical Intelligence Laboratory)

College/University: Kyungpook National University, Daegu, Republic of Korea

Duration: March 2022 – September 2022

Supervisor: Prof. Sangmoon Lee, Professor

## Researcher ID Details:

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Google Scholar Link: <https://scholar.google.com/citations?user=fXESAT8AAAAJ&hl=ko>

Github: <https://seungyong-han.github.io/>

## List of Publications:

International Journals:

1. **S.Y. Han**, S. K. Kommuri, and Y.S. Jin, “Novel criteria of sampled-data synchronization controller design for gated recurrent unit neural networks under mismatched parameters,” Neural Networks (**Under Review, IF 9.6**).
2. **S.Y. Han**, Xuyang Guo, and S. K. Kommuri, “Learning MPC of sampled-data systems using neural ordinary differential equations,” IEEE Transactions on Automation Science and Engineering (**Under Review, IF 6.6**).
3. X.Y. Guo, C.Z. Zhang, H. Zhang, **S.Y. Han**, S.K. Kommuri, and Z.P. Wang, “Data-driven ensemble optimal compensation control for partially known delayed and persistently disturbed nonlinear system,” Journal of the Franklin Institute (**Under Review, IF 4.1**).
4. **S.Y. Han** and S.M. Lee, “Sampled-data-based iterative cost-learning model predictive control for T-S fuzzy systems,” IEEE Transactions on Systems, Man, and Cybernetics: Systems (**Under Review, IF 8.7**).
5. J.C. Park, **S.Y. Han**, and S.M. Lee, “Restored action generative adversarial imitation learning from observation for robot manipulator,” ISA Transactions, vol. 129, Part B, Oct. 2022 (**IF 7.3**).

6. **S.Y. Han**, S.K. Kommuri, O.M. Kwon, and S.M. Lee, "Regional sampled-data synchronization of chaotic neural networks using piecewise-continuous delay dependent Lyapunov functional," *Applied Mathematics and Computation*, vol. 423, no. 15, Jun. 2022 (**IF 4.0**).
7. S. Singh, **S.Y. Han**, and S.M. Lee, "Transformed parameter dependent sliding mode control for discrete-time LPV systems," *IEEE Transactions on Circuits and Systems II: Express Briefs*, vol. 69, no. 3, Mar. 2022 (**IF 4.4**).
8. S.K. Kommuri, **S.Y. Han**, and S.M. Lee, "External torque estimation using higher-order sliding mode observer for robot manipulators," *IEEE/ASME Transactions on Mechatronics*, vol. 27, no. 1, Feb. 2022 (**IF 6.4**).
9. H.I. Jung, **S.Y. Han**, S. Singh, and S.M. Lee, "Polynomially parameter dependent exponential stabilization of sampled-data LPV systems," *Applied Mathematics and Computation*, vol. 411, no. 15, Dec. 2021 (**IF 4.0**).
10. S. Singh, **S.Y. Han**, and S.M. Lee, "Adaptive single input sliding mode control for hybrid-synchronization of uncertain hyperchaotic Lu systems," *Journal of the Franklin Institute*, vol. 358, no. 15, pp.7468-7484, Oct. 2021 (**IF 4.1**).
11. **S.Y. Han** and S.M. Lee, "Sampled-parameter dependent stabilization for linear parameter varying systems with asynchronous parameter sampling," *International Journal of Robust and Nonlinear Control*, 31, no. 8, pp. 3279-3309, May 2021 (**IF 3.9**).
12. **S.Y. Han**, S.K. Kommuri, and S.M. Lee, "Affine transformed IT2 fuzzy event-triggered control under deception attacks," *IEEE Transactions on Fuzzy Systems*, vol. 29, no. 2, pp. 322-335, Feb. 2021 (**IF 11.9**).

#### International Conferences:

1. **S.Y. Han**, Ju H. Park, and S.M. Lee, "Event-triggered controller for synchronization of chaotic neural networks using clock-dependent Lyapunov functionals," 2022 3th Asian Control Conference (ASCC), 2022 (**Republic of Korea, oral presentation**).
2. Y.S. Jin, **S.Y. Han**, E.C. Lee, C. Shin, J.P. Yun, and S.M. Lee, "Development of autonomous driving systems using state estimator with multi-rate sampled-data," 2019 IEEE International Conference on Consumer Electronics (ICCE), 2019 (**USA, oral presentation**).
3. **S.Y. Han**, Y.S. Jin, E.C. Lee, and S.M. Lee, "Sampled-parameter dependent Lyapunov function approach for LPV sampled-data," 2019 International Nonlinear Dynamics Conference (NODYCON), 2019 (**Italy, poster presentation**).
4. **S.Y. Han**, H.Y. Jung, J.H. Park, and S.M. Lee, "Constrained  $H_\infty$  control for active suspension systems with aperiodic sampling: a looped functional approach, 2019 6th International Conference on Control, Decision and Information Technologies (CoDIT), pp. 796-800, 2019 (**France, oral presentation**).
5. Y.S. Jin, **S.Y. Han**, J.C. Park, and S.M. Lee, "Sampled-data synchronization of recurrent neural networks with multi-GPUs," 2019 IEEE Symposium Series on Computational Intelligence (SSCI), pp. 2172-2177, 2019 (**China, poster presentation**).

#### Domestic Journals:

1. D.H. Yue, **S.Y. Han**, and S.M. Lee, "Leader-following sampled-data control of wheeled mobile robots using clock dependent Lyapunov function," *IEMEK Journal of Embedded Systems and Applications*, vol. 16, no. 4, pp.119-127, Aug. 2021.
2. H.I. Jung, **S.Y. Han**, and S.M. Lee, "Event-triggered  $H_2$  attitude controller design for 3 DOF Hover systems," *IEMEK Journal of Embedded Systems and Applications*, vol. 15, no. 3, pp.139-148, Jun. 2020.
3. J.C. Park, **S.Y. Han**, Y.S. Jin, and S.M. Lee, "Variable impedance control for industrial manipulators based on sensorless external force estimator for CPPS," *IEMEK Journal of Embedded Systems and Applications*, vol. 14 no. 5, pp. 259-267, Oct. 2019.
4. **S.Y. Han** and S.M. Lee, "Sampled-data MPC for leader-following of multi-mobile robot system," *The Transactions of the Korean Institute of Electrical Engineers*, vol. 67, no. 2, pp.308-313, Feb. 2018.

#### Research Interests:

- Networked Control Systems
- Model Predictive Control
- Data-Driven Control

### **Computer Skills:**

- MATLAB, Python, C/C++

### **Reviewer Experience:**

- Nonlinear Dynamics
- IEEE Transactions on Fuzzy Systems
- Applied Mathematics and Computation
- International Journal of Control, Automation and Systems

### **Academic Achievements and Activities:**

- Awarded 2019 Kyungpook National University Information & Communications Technology Research Congress, Republic of Korea.
- Awarded 2022 BK-21, Phase-IV (Brain Korean) Performance Forum in Education Research Team of Kyungpook National University, Republic of Korea.
- Session Chair of Recent Advances on Complex Networks and Neural Networks II, Asian Control Conference 2022 held in Jeju Island, Republic of Korea.

### **Research Collaborators/Co-authors:**

- Prof. Sangmoon Lee, Professor, Kyungpook National University, Daegu, Republic of Korea.
- Prof. Suneel Kumar Kommuri, Assistant Professor, Xi'an Jiaotong-Liverpool University, Suzhou , China.
- Prof. Ju H. Park, Professor, Yeungnam University, Kyongsang, Republic of Korea.
- Prof. Oh-Min Kwon, Professor, Chungbuk National University, Cheongju, Republic of Korea.

### **Personal Profile:**

- Date of Birth : 15 January 1992
- Sex : Male
- Marital Status : Single
- Country of Citizenship : Republic of Korea

### **Declaration:**

I hereby declare that the information given above is true to the best of my knowledge and belief.

Place: Daejeon, Republic of Korea

Seungyong Han 