Zong-Sheng WANG

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Research Interests

- **Computer Graphics**
  Virtual Reality, Animation, GPU Programming
- **Machine Learning**
  Reinforcement Learning, Optimization Algorithm

Education

Hallym University   Chuncheon, South Korea
Ph.D. in Convergence Software, GPA: 4.50/4.50   Sep. 2017–Aug. 2021

  – Dissertation: "*Controllable Swarm Animation using Deep Reinforcement Learning with a Rule-based Action Generator*"
  – Advisor: Prof. Sun-Jeong Kim

Hallym University   Chuncheon, South Korea
M.Eng. in Computer Engineering, GPA: 4.38/4.50   Mar. 2012–Feb. 2014

  – Thesis: "*GP-GPU based Smoothed Particle Hydrodynamic Fluid Simulation*"

Hallym University   Chuncheon, South Korea
B.Eng. in Computer Engineering, GPA: 4.27/4.50, Rank: 2/71   Mar. 2010–Feb. 2012

  – Yantai University - Hallym University Joint Program
  – Award: "Outstanding Graduates"

Working Experience

Hallym University Medical Center   Anyang, South Korea
  – Research Fellow   Sep. 2021–present

Hallym University   Chuncheon, South Korea
Department of Convergence Software   Sep. 2017–Aug. 2021

  – Research Assistant

Weifang Maternity and Child Care Hospital   Weifang, China
Information Management Section   May. 2014–Sep. 2017

  – Software Engineer
  – *Desktop Application Development (Qt, C#), Web Service Development (Java, NodeJS)*

Skills and Interests

- **Professional Skills**
  C/C++, Java, Python, Unity3D, Latex, Web, PostgreSQL, Tensorflow, Pytorch

- **Languages**
  Mandarin(native), Korean(fluent), English(literacy), Japanese(novice)
- **Interests**
  Soccer, Kendo, History

Teaching

- **Mentor** in *Unity Shader Programming* at Hallym University — Fall 2019

- **Mentor** in *Web Application Development* in GVE Lab — Winter 2018

- **Teaching Assistant** at Hallym University — Spring 2013
  Computer Graphics
  Smartphone Programming (iOS)
- **Teaching Assistant** at Hallym University — Fall 2012
  Game Programming (DirectX 11)
  Smartphone Programming (iOS)
- **Teaching Assistant** at Hallym University — Spring 2012
  Computer Programming (Java)
  Data Structure

Honors and Awards

- Research Assistant Scholarship at Hallym University — 2017–2020
- Teaching Assistant Scholarship at Hallym University — 2012–2013
- Outstanding Graduates at Hallym University — 2012
- Outstanding Performance Scholarship at Hallym University — 2010, 2011

Extracurricular Activities

- Gangwon Foreign Student Ambassador — 2019–present

- Member of Chuncheon Kendo Club — 2019–present

- Member of Weifang Preventive Medicine Association — 2018–present
  – *Medical Statistics Division*

International Publications

[1] **Z.-S. Wang**, C. G. Song, J. Lee, J.-H. Kim, and S.-J. Kim, "Controllable swarm animation using deep reinforcement learning with a rule-based action generator", *IEEE Access*, vol. 10, pp. 48 472–48 485, 2022.

[2] **Z.-S. Wang**, J. Lee, C. G. Song, and S.-J. Kim, "Data-driven point sampling with blue-noise properties for triangular meshes", in *Proceedings of the 2020 3rd International Conference on Computer Science and Software Engineering*, ser. CSSE 2020, Beijing, China, 2020, 77–82. [**Best Presenter**].

[3] **Z.-S. Wang**, J. Lee, C. G. Song, and S.-J. Kim, "Efficient chaotic imperialist competitive algorithm with dropout strategy for global optimization", *Symmetry*, vol. 12, no. 4, p. 635, 2020.

[4] **Z.-S. Wang**, S.-W. Lee, and C. G. Song, "Unrealistic map based navigation system for pedestrian", *Life Science Journal*, vol. 11, no. 7s, 2014.

[5] **Z.-S. Wang**, J.-H. Choi, Y. Ko, and C. G. Song, "Using a smart phone as input device for pc", in *Proceedings of the 2012 international Workshop on Advanced Image Technology*, ser. IWAIT 2012, Ho Chi Minh City, Vietnam, 2012, pp. 824–828.

Domestic Publications (South Korea)

[1] **Z.-S Wang**, J. Lee, C. G. Song and S.-J. Kim, "Comparison of Exploration Ability for Global Path Planning between Particle Swarm Optimization and Deep Q-network", in *Proceedings of KIISE and KBS Joint Symposium 2018*. Yonsei University, Gangwon, Korea, Jun 1, 2018. pp. 114-117. [**Best Paper Award**]

[2] **Z.-S. Wang**, J.-H. Kim, J.-I. Park and C. G. Song, "Implementation of Unity3D and Kinect Based Gesture Recognition Application", in *HCI 2013 Proceeding*. High One Resort, Gangwon, Korea, Jan 30-Feb 1, 2013. pp. 659-662.

[3] **Z.-S. Wang**, J.-H. Kim, S.-J. Kim and C. G. Song, "Archery Application in Virtual Environment", in *Korea Computer Congress 2013*. Sangji University, Wonju, Korea, Jun 15, 2013. pp. 182-184.

[4] J.-H. Kim, J.-I. Park, **Z.-S. Wang**, S.-J. Kim and C. G. Song, "Image Segmentation System Using 3D Histogram", in *Proceedings of the 39th KIISE Fall Conference(C)*. Chungnam National University, Daejeon Metropolitan City, Korea, Nov 23-24, 2012. pp. 194-196.

[5] J.-I. Park, J.-H. Kim, **Z.-S. Wang**, S.-J. Kim and C. G. Song, "An Alternative Proposal Open Weather Information by Using JSON API", in *Proceedings of the 39th KIISE Fall Conference(D)*. Chungnam National University, Daejeon Metropolitan City, Korea, Nov 23-24, 2012. pp. 102-104.