

# Yanran Guan (管焱然)

<https://isaacguan.github.io/>

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## EDUCATION

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- **Carleton University** Ottawa, ON, Canada  
Ph.D. in Computer Science Sept. 2020 – Present  
M.C.S. in Computer Science Sept. 2017 – Dec. 2019
- **Donghua University** Shanghai, China  
B.E. in Computer Science and Technology Sept. 2013 – Jun. 2017
- **Shanghai International Studies University** Shanghai, China  
B.A. (Minor) in French Language Sept. 2014 – Jun. 2017

## EXPERIENCE

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- **Carleton University** Ottawa, ON, Canada  
Research Assistant Sept. 2017 – Present
  - Researched on geometry processing algorithms, e.g., [mesh smoothing](#) and [parameterization](#).
  - Researched on the problem of [plane detection in point clouds](#), using the deep learning framework [PointNet](#).
  - Researched on functionality partial matching for hybrid shape evaluation and synthesis.
  - Researched on shape synthesis and generation problems using deep generative models, e.g., [autoencoders \(AEs\)](#), [variational autoencoders \(VAEs\)](#), [generalized autoencoders \(GAEs\)](#), and [generative adversarial networks \(GANs\)](#).
  - Research on the controllability problem of latent spaces learned by deep generative models via a semantics-guided exploration.Teaching Assistant Sept. 2018 – Present
  - Advise students in office hours and grade assignments, exams, and final projects.
- **Carleton Immersive Media Studio (CIMS)** Ottawa, ON, Canada  
Research Assistant Jan. 2020 – Aug. 2020
  - Researched on [segmentation problems of point clouds](#), including semantic segmentation and instance segmentation, using the deep learning frameworks [PointNet](#) and [PointNet++](#) and the unsupervised learning method [spectral clustering](#).
  - Developed tools for learning similarity and detecting objects in point clouds, using the [shape context](#) in 3D.
  - Developed tools for plane fitting in point clouds, using [random sample consensus \(RANSAC\)](#).
  - Used the developed tools and models, which segment and classify objects valued as heritage assets, to assist the creation of the heritage building information model (HBIM) of the [Centre Block](#) in Ottawa.
- **Canadian Food Inspection Agency (CFIA)** Ottawa, ON, Canada  
Junior Data Scientist May. 2018 – Dec. 2019
  - Developed the [functional realignment scenario tool \(FRST\)](#) for supporting resource allocation decision-making with respect to planned initiatives.
  - Developed machine learning models for compliance prediction of the wood packaging material (WPM) data of imported shipments, and developed a decision support tool, the [WPM compliance predictor](#), to enhance the effectiveness of CFIA's oversight activities.
  - Conducted text mining experiments to identify the risks of concern to plant health from on-line traded products, and developed a risk identification tool, the [plant health automated e-commerce data extractor \(PHAEDE\)](#), that automatically collects product information from on-line trading platforms and perform risk identification.

- Developed the [African swine fever \(ASF\) assessment tool](#), which provides a means to aggregate the risk scores of imported shipments for targeting the shipments that may contain mis-declared or undeclared pork products in food at risk of carrying viable ASF virus particles.

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## SERVICE

- **Invited Reviewer**

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|---|------|
| KSII Transactions on Internet and Information Systems (TIIS)      | 2020 |
| ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games (I3D) | 2020 |
| International Conference on Systems and Informatics (ICSAI)       | 2019 |

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## TEACHING

- **Teaching Assistant**

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|---|----------------------|
| COMP3005B Database Management Systems             | Fall 2020, Fall 2019 |
| COMP4003A Transaction Processing Systems          | Fall 2019            |
| COMP4501A Advanced Facilities for Real-Time Games | Winter 2019          |
| COMP2406A Fundamentals of Web Applications        | Fall 2018            |

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## PUBLICATIONS

1. **Yanran Guan**, Han Liu, Kun Liu, Kangxue Yin, Ruizhen Hu, Oliver van Kaick, Yan Zhang, Ersin Yumer, Nathan Carr, Radomir Mech, and Hao Zhang. FAME: 3D Shape Generation via Functionality-Aware Model Evolution. *IEEE Transactions on Visualization and Computer Graphics*, to appear.  
arXiv preprint: [arXiv:2005.04464](#)  
DOI: [10.1109/TVCG.2020.3029759](#)
2. **Yanran Guan**, Tansin Jahan, and Oliver van Kaick. Generalized Autoencoder for Volumetric Shape Generation. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops*, pages 1082–1088, 2020.  
DOI: [10.1109/CVPRW50498.2020.00142](#)
3. **Yanran Guan**. 3D Functionality Analysis for Shape Modeling via Partial Matching. Master’s thesis, Carleton University, 2020.  
DOI: [10.22215/etd/2020-14050](#)
4. **Yanran Guan**, Oliver van Kaick, and Youqing Guan. Research and Implementation of Triangle Mesh Parameterization Method Based on Barycentric Mapping (in Chinese). *Journal of Beijing University of Posts and Telecommunications*, 42(5):83–90, 2019.  
DOI: [10.13190/j.jbupt.2018-266](#)
5. Youqing Guan, Ke Zhang, and **Yanran Guan**. STCP: Simple Transaction Commit Protocol for Wireless Sensor Networks. In *Proceedings of the International Conference on Systems and Informatics*, pages 1022–1028, 2019.  
DOI: [10.1109/ICSAI48974.2019.9010100](#)
6. **Yanran Guan** and Youqing Guan. Research and Application of Affine Transformation Based on OpenCV (in Chinese). *Computer Technology and Development*, 26(12):58–63, 2016.  
DOI: [10.3969/j.issn.1673-629X.2016.12.013](#)

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## OTHER INTERESTS

- **Literature:** I like reading and writing. I was the co-translator of the [Chinese edition of \*The Detour\*](#) (*De omweg* in Dutch and the English edition is known as *Ten White Geese*), novel by the Dutch novelist [Gerbrand Bakker](#) (translated from English to Chinese).
- **Chinese Calligraphy:** I am a member of the Jiangsu Association for Young Calligraphers and the Nanjing Association for Young Calligraphers.
- **Traveling:** I love traveling, especially long distance biking trips. I used to bike over 1000 kilometers from Shanghai to Xiamen in China and [here](#) is my blog post about this trip.