# YINYU NIE

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National Centre for Computer Animation, Bournemouth University
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## EDUCATION

**Bournemouth University, U.K.** *January 2017 - Expected 2020*
**PhD**, Scene understanding and reconstruction, 3D shape analysis.
Thesis: "Content-aware indoor scene understanding and modeling".
National Centre for Computer Animation, Faculty of Media and Communication.

**Southwest Jiaotong University, China.** *September 2014 - December 2016*
**MSc**, Vehicle system dynamics, Photo-based vehicle body modelling.
Thesis: "Data-driven simulation framework for railway vehicle dynamics".
State Key Laboratory of Traction Power.

**Southwest Jiaotong University, China.** *September 2010 - June 2014*
**BSc**, Statistics.
School of Mathematics.

## RESEARCH INTERESTS

3D Computer Vision and Graphics including: 3D scene analysis, understanding and modeling, 3D shape retrieval, completion and reconstruction.

## SKILLS

Proficient in Deep Learning, Machine Learning, Pytorch, Matlab, Mathematica, etc.

## RESEARCH EXPERIENCE

**National Centre for Computer Animation, U.K.** *January 2017 - Present*
Postgraduate researcher
Topics: Content-aware indoor scene understanding and modeling.
Supervisors: Jian Chang, Jian J Zhang.

**The Chinese University of Hong Kong (Shenzhen), China** *August 2019 - December 2019*
Visiting researcher
Topics: 3D scene understanding and reconstruction.
Project Instructor: Xiaoguang Han.

**State Key Laboratory of Traction Power, China.** *September 2013 - December 2016*
Postgraduate researcher
Topics: Photo-based 3D modelling of train accident scenes; Data-driven vehicle dynamics simulation.
Supervisors: Jian J Zhang, Zhao Tang.

## PUBLICATIONS

**Nie, Y.**, Han, X., Guo, S., Zheng, Y., Chang, J. and Zhang, J.J., 2020. Total3DUnderstanding: Joint Layout, Object Pose and Mesh Reconstruction for Indoor Scenes from a Single Image. arXiv preprint arXiv:2002.12212. (CVPR2020 **Oral**)

**Nie, Y.**, Guo, S., Chang, J., Han, X., Huang, J., Hu, S.M. and Zhang, J.J., 2020. Shallow2Deep: Indoor scene modeling by single image understanding. Pattern Recognition, 103, p.107271.

**Nie, Y.**, Chang, J., Chaudhry, E., Guo, S., Smart, A. and Zhang, J.J., 2018. Semantic modeling of indoor scenes with support inference from a single photograph. Computer Animation and Virtual Worlds, 29(3-4), p.e1825. (CASA2018 **Best Paper Award**)

**Nie, Y.**, Tang, Z., Liu, F., Chang, J. and Zhang, J., 2018. A data-driven dynamics simulation framework for railway vehicles. Vehicle system dynamics, 56(3), pp.406-427.

Tang, Z.*, **Nie, Y.***, Chang, J., Zhang, J. and Liu, F., 2018. Photo-based automatic 3D reconstruction of train accident scenes. Proceedings of the Institution of Mechanical Engineers, Part F: Journal of Rail and Rapid Transit, 232(1), pp.144-158.

Xu, J., Tang, Z., Yuan, X., **Nie, Y.**, Ma, Z., Wei, X. and Zhang, J., 2018. A VR-based the emergency rescue training system of railway accident. Entertainment Computing, 27, pp.23-31.

Tang, Z.*, Zhu, Y.*, **Nie, Y.***, Guo, S., Liu, F., Chang, J. and Zhang, J., 2017. Data-driven train set crash dynamics simulation. Vehicle system dynamics, 55(2), pp.149-167.

**Nie, Y.Y.**, Tang, Z., Yu, J.F., Zhu, Y.R., Chang, J., Zhang, J.J., Guo, S.H. and Su, Y., 2016, September. Image-based 3D Scene Reconstruction and Rescue Simulation Framework for Railway Accidents. In 2016 International Conference on Virtual Reality and Visualization (ICVRV) (pp. 335-340). IEEE.
(* indicates equal contributions)