

Suggested Oral Exam Topics and Reading

Auston Sterling

1 Sound Synthesis

- Kevin Karplus and Alex Strong. “Digital Synthesis of Plucked-String and Drum Timbres”. In: *Computer Music Journal* 7.2 (1983), pp. 43–55. ISSN: 01489267, 15315169. URL: <http://www.jstor.org/stable/3680062>
- Kees van den Doel and Dinesh K. Pai. “The Sounds of Physical Shapes”. In: *Presence* 7 (1996), pp. 382–395.
- James F. O’Brien, Chen Shen, and Christine M. Gatchalian. “Synthesizing Sounds from Rigid-body Simulations”. In: *Proceedings of the 2002 ACM SIGGRAPH/Eurographics Symposium on Computer Animation*. SCA ’02. San Antonio, Texas: ACM, 2002, pp. 175–181. ISBN: 1-58113-573-4. DOI: 10.1145/545261.545290. URL: <http://doi.acm.org/10.1145/545261.545290>
- Nikunj Raghuvanshi and Ming C. Lin. “Interactive Sound Synthesis for Large Scale Environments”. In: *Proceedings of the 2006 Symposium on Interactive 3D Graphics and Games*. I3D ’06. Redwood City, California: ACM, 2006, pp. 101–108. ISBN: 1-59593-295-X. DOI: 10.1145/1111411.1111429. URL: <http://doi.acm.org/10.1145/1111411.1111429>
- Doug L James, Jernej Barbič, and Dinesh K Pai. “Precomputed acoustic transfer: output-sensitive, accurate sound generation for geometrically complex vibration sources”. In: *ACM Transactions on Graphics (TOG)*. vol. 25. 3. ACM. 2006, pp. 987–995
- Changxi Zheng and Doug L. James. “Toward High-Quality Modal Contact Sound”. In: *ACM Transactions on Graphics (Proceedings of SIGGRAPH 2011)* 30.4 (Aug. 2011). URL: <http://www.cs.cornell.edu/projects/Sound/mc>
- **Damping Modeling**
 - TK Caughey. “Classical normal modes in damped linear dynamic systems”. In: *Journal of Applied Mechanics* 27.2 (1960), pp. 269–271
 - S. Adhikari and J. Woodhouse. “Identification of Damping: Part 1, Viscous Damping”. In: *Journal of Sound and Vibration* 243.1 (2001), pp. 43–61. ISSN: 0022-460X. DOI: <http://dx.doi.org/10.1006/jsvi.2000.3391>. URL: <http://www.sciencedirect.com/science/article/pii/S0022460X00933911>

2 Audiovisual Object Reconstruction

- Richard A. Newcombe et al. “KinectFusion: Real-Time Dense Surface Mapping and Tracking”. In: *International Symposium on Mixed and Augmented Reality (ISMAR)* (2011)
- S. M. Seitz et al. “A comparison and evaluation of multi-view stereo reconstruction algorithms”. In: *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)* (2006)
- Angela Dai et al. “BundleFusion: Real-time Globally Consistent 3D Reconstruction using On-the-fly Surface Re-integration”. In: *SIGGRAPH* (2017)
- Z. Wu et al. “3D ShapeNets: A Deep Representation for Volumetric Shape Modeling”. In: *Proceedings of 28th IEEE Conference on Computer Vision and Pattern Recognition (CVPR)* (2015)

- Dinesh K Pai et al. “Scanning physical interaction behavior of 3D objects”. In: *Proceedings of the 28th annual conference on Computer graphics and interactive techniques*. ACM, 2001, pp. 87–96
- Zhimin Ren, Hengchin Yeh, and Ming C. Lin. “Example-guided Physically Based Modal Sound Synthesis”. In: *ACM Trans. Graph.* 32.1 (Feb. 2013), 1:1–1:16. ISSN: 0730-0301. DOI: 10.1145/2421636.2421637. URL: <http://doi.acm.org/10.1145/2421636.2421637>
- Mark Kac. “Can One Hear the Shape of a Drum?” In: *The American Mathematical Monthly* 73.4 (1966), pp. 1–23. ISSN: 00029890, 19300972. URL: <http://www.jstor.org/stable/2313748>
- A. Davis et al. “Visual Vibrometry: Estimating Material Properties from Small Motions in Video”. In: *IEEE Transactions on Pattern Analysis and Machine Intelligence* 39.4 (Apr. 2017), pp. 732–745. ISSN: 0162-8828. DOI: 10.1109/TPAMI.2016.2622271

3 Sound Classification

- Michael Cowling and Renate Sitte. “Comparison of techniques for environmental sound recognition”. In: *Pattern Recognition Letters* 24.15 (2003), pp. 2895–2907. ISSN: 0167-8655. DOI: [https://doi.org/10.1016/S0167-8655\(03\)00147-8](https://doi.org/10.1016/S0167-8655(03)00147-8). URL: <http://www.sciencedirect.com/science/article/pii/S0167865503001478>
- Michael B uchler et al. “Sound Classification in Hearing Aids Inspired by Auditory Scene Analysis”. In: *EURASIP Journal on Advances in Signal Processing* 2005.18 (Nov. 2005), p. 387845. ISSN: 1687-6180. DOI: 10.1155/ASP.2005.2991. URL: <https://doi.org/10.1155/ASP.2005.2991>
- K. J. Piczak. “Environmental sound classification with convolutional neural networks”. In: *2015 IEEE 25th International Workshop on Machine Learning for Signal Processing (MLSP)*. Sept. 2015, pp. 1–6. DOI: 10.1109/MLSP.2015.7324337
- Karol J. Piczak. “ESC: Dataset for Environmental Sound Classification”. In: *Proceedings of the 23rd ACM International Conference on Multimedia*. MM ’15. Brisbane, Australia: ACM, 2015, pp. 1015–1018. ISBN: 978-1-4503-3459-4. DOI: 10.1145/2733373.2806390. URL: <http://doi.acm.org/10.1145/2733373.2806390>
- Emre  akir et al. “Convolutional Recurrent Neural Networks for Polyphonic Sound Event Detection”. In: *CoRR* abs/1702.06286 (2017). arXiv: 1702.06286. URL: <http://arxiv.org/abs/1702.06286>

4 Multimodal Interaction

- Zhimin Ren, Hengchin Yeh, and M.C. Lin. “Synthesizing contact sounds between textured models”. In: *Virtual Reality Conference (VR), 2010 IEEE*. Mar. 2010, pp. 139–146. DOI: 10.1109/VR.2010.5444799
- Margaret Minsky et al. “Feeling and Seeing: Issues in Force Display”. In: *SIGGRAPH Comput. Graph.* 24.2 (Feb. 1990), pp. 235–241. ISSN: 0097-8930. DOI: 10.1145/91394.91451. URL: <http://doi.acm.org/10.1145/91394.91451>
- M.A. Otaduy et al. “Haptic display of interaction between textured models”. In: *IEEE Visualization Conference*. Oct. 2004, pp. 297–304. DOI: 10.1109/VISUAL.2004.37
- Richard A. Bolt. “&Ldquo;Put-that-there&Rdquo;: Voice and Gesture at the Graphics Interface”. In: *SIGGRAPH Comput. Graph.* 14.3 (July 1980), pp. 262–270. ISSN: 0097-8930. DOI: 10.1145/965105.807503. URL: <http://doi.acm.org/10.1145/965105.807503>
- Scott Nykl, Chad Mourning, and David Chelberg. “Interactive Mesostructures”. In: *Proceedings of the ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games*. I3D ’13. Orlando, Florida: ACM, 2013, pp. 37–44. ISBN: 978-1-4503-1956-0. DOI: 10.1145/2448196.2448202. URL: <http://doi.acm.org/10.1145/2448196.2448202>