Bedrich Benes

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Purdue University
Professor and Associate Head of Computer Science
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Research Interests

Computer graphics, geometric modeling, procedural modeling, computational biology, AI, generative algorithms, simulation of natural phenomena, digital twins, deep learning, reconstruction, and additive manufacturing.

Education

Ph.D. Computer Science, Czech Technical University in Prague, 1998.

M.S. Computer Science, Czech Technical University in Prague, 1991.

Professional Experience

Jul. 2024 - present
Associate Head of Department of Computer Science

Jan. 2022 - present
Professor of Department of Computer Science

Aug. 2019 - Dec. 2021
Professor of Department of Computer Science (40%) Purdue University, USA

Apr. 2019 - Dec. 2021
George McNelly Professor of Technology

Dec. 2017 - 2019
Professor of Department of Computer Science (by courtesy) Purdue University, USA

Aug. 2015 - Dec. 2021
Professor of Department of Computer Graphics Technology (60%) Purdue University, USA

Aug. 2010 - Aug. 2015
Associate Professor of Department of Computer Graphics Technology Purdue University, USA

Aug. 2011 - Aug. 2012
Assistant Head of Department of Computer Graphics Technology Purdue University, USA

Aug. 2005 - Aug. 2010
Assistant Professor of Department of Computer Graphics Technology Purdue University, USA

Aug. 2000 - Aug. 2005
Assistant Professor of Department of Computer Science Instituto Technológico y de Estudios Superiores de Monterrey (ITESM), Mexico

Jul. 1999 - Jun. 2000
Visiting Professor of the Department of Computer Science Instituto Technológico y de Estudios Superiores de Monterrey (ITESM), Mexico

Jun. 1998 - Jul. 1999
Assistant Professor of Computer Science Czech Technical University in Prague, Czech Republic

Awards and Honors

2025 Keynote: VCAI Kiel University, Germany, Plant Phenotyping

2025 Keynote: CEIG 2025, Spain, Recent Advances in Computer Graphics Vegetation Modeling

2024 Best paper "Exploring Extended Reality (XR) in Teaching AI: A Comparative Study of XR and Desktop Environments", 9th International Conference on Human Computer Interaction Theory and Applications (HUCAPP)

2024 Honorable mention from the Best paper committee "Unerosion: Simulating Terrain Evolution Back in Time", Symposium on Computer Animation

2022 Fellow of the European Association for Computer Graphics (Eurographics)

2020 Associate Editor of the Year (Elsevier Computers & Graphics)

2020 Best paper committee Eurographics Symposium on Rendering ,"Semi-Procedural Textures Using Point Process Texture Basis Functions", Honorable mention

2019 George McNelly Professor of Technology (named professorship)

2019 Best paper committee GRAPP "Character Animation in Function Space", Best paper

2019 ACM, Senior Member

2018 Keynote: COMPDES, University of San Carlos, Costa Rica,

2017 IEEE, Senior Member

2017 Eurographics 2017, Full papers chair

2017 Best paper committee Eurographics,"Interactive Modeling and Authoring of Climbing Plants", Honorable mention

2012 Purdue University, Outstanding Award in Discovery

2011 Siggraph Bogota, Keynote address

2011 Purdue University, Faculty Scholar

2011 Purdue University, Outstanding Award in Discovery

2009 Purdue University, Early Faculty Discovery Award

2006 ACM Spring Conference on Computer Graphics, Keynote address

2005 Instituto Technológico y de Estudios Superiores de Monterrey (ITESM) (Premio Rómulo Garza), Outstanding faculty award in discovery and technical development

2003 Best paper committee of IEEE International Conference Theory and Practice of Computer Graphics, "Modeling Virtual Gardens by Autonomous Procedural Agents", Best paper, Ken Brodlie award

2003 Campus Ciudad de México of the Instituto Technológico y de Estudios Superiores de Monterrey (ITESM), Outstanding Faculty in Discovery

2002 Campus Estado de México of the Instituto Technológico y de Estudios Superiores de Monterrey (ITESM), Outstanding Graduate Advisor

Publications

Journal Articles

1. Yang, Z., Jain, A., Cordonnier, G., Cani, M.-P., Wang, Z., & Benes, B. (2025). Arenite: A Physics-based Sandstone Simulator. *ACM Transactions on Graphics*, 44(4).

2. Zhou, X., Li, B., Benes, B., Habib, A., Fei, S., Shao, J., and Pirk, S. (2025). TreeStructor: Forest Reconstruction With Neural Ranking. *IEEE Transactions on Geoscience and Remote Sensing*, 63, 1–19.

3. Davis, J. M., Gaillard, M. C., Tross, M. C., Shrestha, N., Ostermann, I., Grove, B., Li, B., Benes, B., and Schnable J. C., (2025) 3D Reconstruction Enables High-Throughput Phenotyping and Quantitative Genetic Analysis of Phyllotaxy *Plant Phenomics*, 100023

4. Liu, Y., and Benes, B., (2025) Single-Shot Example Terrain Sketching by Graph Neural Networks *Computer Graphics Forum*, e15281

5. Ostermann, I., Benes, B., Gaillard, M., Li, B., Davis, J., Grove, R., Shrestha, N., Tross, M.C., and Schnable, J., (2024) Sorghum segmentation and leaf counting using in silico trained deep neural model *The Plant Phenome Journal* 7 (1), e70002

6. Yang, Z., Cordonnier, G., Cani, MP., Perrenoud, C., and Benes, B (2024) Unerosion: Simulating terrain evolution back in time *Computer Graphics Forum* 43 (8), e15182

7. Warner, C., Wu, F., Gazo, R., Benes, B., & Fei, S. (2025). Environmental Sensitivity in AI Tree Bark Detection: Identifying Key Factors for Improving Classification Accuracy. *Algorithms*, 18(7).

8. Feijoo-Garcia, M. A., Zhang, Y., Gu, Y., Magana, A. J., Benes, B., & Popescu, V. (2025). Students' Conceptual Explanations of Neural Networks Enabled by Extended Reality: A Multiple Method Approach. *Computer Applications in Engineering Education*, 33(6), e70084.

9. Wang, Z., Benes, B., Qureshi, A., and Mousas, C., (2024) Evolution-Based Shape and Behavior Co-Design of Virtual Agents *IEEE Transactions on Visualization and Computer Graphics*, 30(12) 7579-7591

10. Acevedo, P., Magana, AJ., Walsh, Y., Will, H., Benes, B., and Mousas, C (2024) Embodied immersive virtual reality to enhance the conceptual understanding of charged particles: A qualitative study *Computers & Education: X Reality* 5, 100075

11. Wu, F., Huang, Y., Benes, B., Warner, CC., and Gazo, R (2024) Automated tree ring detection of common Indiana hardwood species through deep learning: Introducing a new dataset of annotated images *Information Processing in Agriculture* 11 (4), 552-558

12. Acevedo, P., Magana, AJ., Benes, B., and Mousas, C., (2024) A systematic review of immersive virtual reality in STEM education: Advantages and disadvantages on learning and user experience *IEEE Access*

13. Magana, AJ., Mubarrat, ST., Kao, D., and Benes, B., (2024) AI-Based Automatic Detection of Online Teamwork Engagement in Higher Education *IEEE Transactions on Learning Technologies*

14. Zhang, Y., Feijoo-Garcia, MA., Gu, Y., Popescu, V., Benes, B., and Magana, AJ (2024) Virtual and augmented reality in Science, Technology, Engineering, and Mathematics (STEM) education: an Umbrella Review *Information 15(9)*

15. Jain, A., Benes, B., and Cordonnier, G. (2024). Efficient Debris-flow Simulation for Steep Terrain Erosion. *ACM Transactions on Graphics,* 43(4).

16. Li, B., Schwarz, N. A., Palubicki, W., Pirk, S., and Benes, B. (2024). Interactive Invigoration: Volumetric Modeling of Trees with Strands. *ACM Transactions on Graphics,* 43(4).

17. Lee, J. J., Li, B., and Benes, B. (2024). Latent L-Systems: Transformer-Based Tree Generator. *ACM Transactions on Graphics,* 43(1), 119–130.

18. Tuggle, C. K., Clarke, J. L., Murdoch, B. M., Lyons, E., Scott, N. M., Benes, B., Campbell, J. D., Chung, H., Daigle, C. L., Choudhury, S. D., Dekkers, J. C. M., Dorea, J. R. R., Ertl, D. S., Feldman, M., Fragomeni, B. O., Fulton, J. E., Guadagno, C. R., Hagen, D. E., Hess, A. S., and Schnable, P. S. (2024). Current challenges and future of agricultural genomes to phenomes in the USA. *Genome Biology,* 25(8).

19. Zarei, A., Li, B., Schnable, J. C., Lyons, E., Pauli, D., Barnard, K., and Benes, B. (2024). PlantSegNet: 3D point cloud instance segmentation of nearby plant organs with identical semantics. *Computers and Electronics in Agriculture,* 221, 108922.

20. Yang, Z., Cordonnier, G., Cani, M.-P., Perrenoud, C., and Benes, B. (2024). Unerosion: Simulating Terrain Evolution Back in Time. *Computer Graphics Forum.* **Honorable mention from the Best Papers Committee**

21. Magana, A. J., Mubarrat, S. T., Kao, D., and Benes, B. (2024). AI-Based Automatic Detection of Online Teamwork Engagement in Higher Education. *IEEE Transactions on Learning Technologies*, 17, 2091–2106.

22. Zhang, Y., Feijoo-Garcia, M. A., Gu, Y., Popescu, V., Benes, B., and Magana, A. J. (2024). Virtual and Augmented Reality in Science, Technology, Engineering, and Mathematics (STEM) Education: An Umbrella Review. *Information*, 15(9).

23. Acevedo, P., Magana, A. J., Walsh, Y., Will, H., Benes, B., and Mousas, C. (2024). Embodied immersive virtual reality to enhance the conceptual understanding of charged particles: A qualitative study. *Computers & Education: X Reality*, 5,

24. Warner, C., Wu, F., Gazo, R., Benes, B., Kong, N., and Fei, S. (2024). CentralBark Image Dataset and Tree Species Classification Using Deep Learning. *Algorithms,* 17(5).

25. Neri, L., Noguez, J., Escobar-Castillejos, D., Robledo-Rella, V., García-Castelán, R. M. G., Gonzalez-Nucamendi, A., Magana, A. J., and Benes, B. (2024). Enhancing Buoyant Force Learning Through a Visuo-Haptic Environment: A Case Study. *Frontiers in Robotics and AI,* 11.

26. Li, B., Klein, J., Michels, D. L., Pirk, S., Benes, B., and Palubicki, W. (2023). Rhizomorph: The Coordinated Function of Shoots and Roots. *ACM Transaction on Graphics,* 42(4).

27. Cordonnier, G., Jouvet, G., Peytavie, A., Braun, J., Cani, M.-P., Benes, B., Galin, E., Guérin, E., and Gain, J. (2023). Forming Terrains by Glacial Erosion. *ACM Transaction on Graphics,* 42(4).

28. Zhou, X., Li, B., Benes, B., Fei, S., and Pirk, S. (2023). DeepTree: Modeling Trees with Situated Latents. *IEEE Transactions on Visualization & Computer Graphics,* 01, 1–14.

29. Gaillard, M., Benes, B., Tross, M. C., and Schnable, J. C. (2023). Multi-view triangulation without correspondences. *Computers and Electronics in Agriculture,* 206, 107688.

30. Perche, S., Peytavie, A., Benes, B., Galin, E., and Guérin, E. (2023). Authoring Terrains with Spatialised Style. *Computer Graphics Forum, 42(7),* e14936

31. Mathew, C. D. T., Benes, B., and Aliaga, D. G. (2023). Sketching Vocabulary for Crowd Motion. *Computer Graphics Forum,* 41(8), 119–130.

32. Popescu, V., Magana, A. J., and Benes, B. (2023). Towards Immersive Visualization for Large Lectures: Opportunities, Challenges, and Possible Solutions. In A. Magana and J. Zara (Eds.), *Eurographics 2023 - Education Papers.* The Eurographics Association.

33. Polasek, T., Čadík, M., Keller, Y., and Benes, B. (2023). Vision UFormer: Long-range monocular absolute depth estimation. *Computers & Graphics*, 111, 180–189

34. Gaillard, M., Benes, B., Tross, M. C., and Schnable, J. C. (2023). Multi-view triangulation without correspondences. *Computers and Electronics in Agriculture, 206, 107688.*

35. Niese, T., Pirk, S., Albrecht, M., Benes, B., and Deussen, O. (2022). Procedural Urban Forestry. *ACM Transactions on Graphics*, 41(2).

36. Polasek, T., Hrusa, D., Benes, B., and Cadik, M. (2021). ICTree: Automatic Perceptual Metrics for Tree Models in *ACM Transactions on Graphics,* 40(6)

37. Li, B., Kałużny, J., Klein, J., Michels, D. L., Pałubicki, W., Benes, B., and Pirk, S. (2021). Learning to Reconstruct Botanical Trees from Single Images in *ACM Transactions on Graphics,* 40(6)

38. Liu, Y., Guo, J., Benes, B., Deussen, O., Zhang, X., and Huang, H. (2021). TreePartNet: Neural Decomposition of Point Clouds for 3D Tree Reconstruction in *ACM Transactions on Graphics,* 40(6)

39. Ecormier-Nocca, P., Cordonnier, G., Carrez, P., Moigne, A.-Marie, Memari, P., Benes, B., and Cani, M.-P. (2021). Authoring Consistent Landscapes with Flora and Fauna in *ACM Transactions on Graphics,* 40(4) pp 1-13.

40. Gieseke, L., Asente, P., Mech, R., Benes, B., and Fuchs, M. (2021). A Survey of Control Mechanisms for Creative Pattern Generation in *Computer Graphics Forum,* 40(2)pp 585-609.

41. Kim, H., Dischler, J.-M., Rushmeier, H., and Benes, B. (2021). Edge-based procedural textures in *The Visual Computer,* 37 pp 2595-2606.

42. Wu, F., Gazo, R., Benes, B., and Haviarova, E. (2021). Deep BarkID: a portable tree bark identification system by knowledge distillation in *European Journal of Forest Research*

43. Deva, A., Krs, V., Robison, L., Adorf, C., Benes, B., Glotzer, S. C., and Garcia, E. (2021). Data Driven Analytics of Porous Battery Microstructures in *Energy & Environmental Science,* pp 2485–2493.

44. Wu, F., Gazo, R., Haviarova, E., and Benes, B. (2021). Wood identification based on longitudinal section images by using deep learning in *Wood Science and Technology,* 55 pp 553–563.

45. Kolmanič, S., Strnad, D., Kohek, Š., Benes, B., Hirst, P., and Žalik, B. (2021). An algorithm for automatic dormant tree pruning in *Applied Soft Computing,* 99, 106931.

46. Walsh, Y., Magana, A., Will, H., Yuksel, T., Bryan, L., Berger, E., and Benes, B., (2021) A Learner-Centered Approach for Designing Visuohaptic Simulations for Conceptual Understanding of Truss Structures in *Computer Applications in Engineering Education,* pp 1-22.

47. Lawson, A. P., Mayer, R. E., Adamo-Villani, N., Benes, B., Lei, X., and Cheng, J. (2021). Do Learners Recognize and Relate to the Emotions Displayed By Virtual Instructors? in *International Journal of Artificial Intelligence in Education,* 114, pp 1560–4306.

48. Lawson, A. P., Mayer, R. E., Adamo-Villani, N., Benes, B., Lei, X., and Cheng, J. (2021). Recognizing the emotional state of human and virtual instructors in *Computers in Human Behavior,* 114, 106554.

49. Graciano, A., Rueda, A. J., Pospíšil, A., Bittner, J., and Benes, B. (2021). QuadStack: An Efficient Representation and Direct Rendering of Layered Datasets in *IEEE Transactions on Visualization and Computer Graphics,* 27(9), pp 3733–3744.

50. Guo, J., Jiang, H., Benes, B., Deussen, O., Zhang, X., Lischinski, D., and Huang, H. (2020). Inverse Procedural Modeling of Branching Structures by Inferring L-Systems. in *ACM Transactions on Graphics,* 39(5) pp 1-13.

51. Krs, V., Mech, R., Gaillard, M., Carr, N., and Benes, B. (2020). PICO: Procedural Iterative Constrained Optimizer for Geometric Modeling in *IEEE Transactions on Visualization and Computer Graphics,* 27(10) pp 3968-3981.

52. Guehl, P., Allegre, R., Dischler, J.-M., Benes, B., and Galin, E. (2020). Semi-Procedural Textures Using Point Process Texture Basis Functions in *Computer Graphics Forum,* 39(4), pp 159–171. **Honorable mention from Best Paper Committee**

53. Zhang, X., Shehata, A., Benes, B., and Aliaga, D. (2020). Automatic Deep Inference of Procedural Cities from Global-Scale Spatial Data in *ACM Transactions on Spatial Algorithms and Systems,* 7(2) pp 1-28.

54. Benes, B., Guan, K., Lang, M., Long, S. P., Lynch, J. P., Marshall-Colón, A., Peng, B., Schnable, J., Sweetlove, L. J., and Turk, M. J. (2020). Multiscale computational models can guide experimentation and targeted measurements for crop improvement in *The Plant Journal,* 103(1) pp 21–31.

55. Strnad, D., Štefan Kohek, Benes, B., Kolmanič, S., and Žalik, B. (2020). A framework for multi-objective optimization of virtual tree pruning based on growth simulation in *Expert Systems with Applications,* 162, 113792.

56. Gaillard, M., Miao, C., Schnable, J. C., and Benes, B. (2020). Voxel carving-based 3D reconstruction of sorghum identifies genetic determinants of light interception efficiency in *Plant Direct,* 4(10), e00255.

57. Escobar-Castillejos, D., Noguez, J., Bello, F., Neri, L., Magana, A. J., and Benes, B. (2020). A Review of Training and Guidance Systems in Medical Surgery in *Applied Sciences,* 10(17), 5752.

58. Yoo, I., Fišer, M., Hu, K., and Benes, B. (2020). Character Animation in Function Space in *The Visual Computer,* 37 pp 1432–2315. **Best Paper of GRAPP 2019**

59. Mathew, C. D. T., Benes, B., and Aliaga, D. G. (2020). An output-driven approach to design a swarming model for architectural indoor environments in *Computers & Graphics,* 87, pp 103–110.

60. Gazo, R., Vanek, J., Abdul-Massih, M., and Benes, B. (2020). A fast pith detection for computed tomography scanned hardwood logs in *Computers and Electronics in Agriculture,* 170, 105107.

61. Peytavie, A., Dupont, T., Guérin, E., Cortial, Y., Benes, B., Gain, J., and Galin, E. (2019). Procedural Riverscapes in *Computer Graphics Forum,* 38(7), pp 35–46.

62. Galin, E., Guérin, E., Peytavie, A., Cordonnier, G., Cani, M.-P., Benes, B., Cani, M.-P., and Gain. J., (2019) A review of digital terrain modeling in *Computer Graphics Forum,* 38(2) pp 553-577.

63. Shaik, A. R., Brinkman, D., Sankin, I., Ringhofer, C., Krasikov, D., Kang, H., Benes, B., and Vasileska, D. (2019). PVRD-FASP: A Unified Solver for Modeling Carrier and Defect Transport in Photovoltaic Devices in *IEEE Journal of Photovoltaics,* 9(6) pp 1602–1613.

64. Yuksel, T., Walsh, Y., Magana, A. J., Nova, N., Krs, V., Ngambeki, I., Berger, E. J., and Benes, B. (2019). Visuohaptic experiments: Exploring the effects of visual and haptic feedback on students' learning of friction concepts in *Computer Applications in Engineering Education,* 27(6), 1376–1401.

65. Yeum, C.M., Dyke, S.J., Benes, B., Hacker, T., Ramirez, J., Lund, A., and Pujol, S., (2019) Postevent Reconnaissance Image Documentation Using Automated Classification in *Journal of Performance of Constructed Facilities,* Volume 33(1), pp 3717-3724.

66. Kang, H., and Li, H., Zhang, J., Lu, X., and Benes, B., (2018) FlyCam: Multitouch Gesture Controlled Drone Gimbal Photography in *IEEE Robotics and Automation Letters,* 3(4), pp 3717-3724.

67. Gazo, R., Wells, L., Krs, V., and Benes, B., (2018) Validation of automated hardwood lumber grading system, in *Computers and Electronics in Agriculture,* pp 496–500.

68. Wells, L., Gazo, R., Re, R. D., Krs, V., and Benes, B. (2018). Defect detection performance of automated hardwood lumber grading system, in *Computers and Electronics in Agriculture,* 155, 487–495.

69. Galicia J. A. G., and Benes, B., (2018) Improving Printing Orientation for Fused Deposition Modeling Printers by Analyzing Connected Components, in *Additive Manufacturing,* 22, pp 720-728.

70. Cordonnier, G., Cani, M-P., Benes, B., Braun, J., and Galin, E., (2018) Sculpting Mountains: Interactive Terrain Modeling based on Subsurface Geology, in *IEEE Transactions on Visualization and Computer Graphics,* 24(5), pp 1717 – 1727.

71. Demir, I., Aliaga, D.G., and Benes, B., (2018) Near-Convex Decomposition and Layering for Efficient 3D Printing, in *Additive Manufacturing,* 21, pp 383-395.

72. Cordonnier, G., Ecormier, P., Galin, E., Gain, J., Benes, B., and Cani, M-P., (2018) Interactive Generation of Time-evolving, Snow-Covered Landscapes with Avalanches, in *Computer Graphics Forum,* 37(2), pp 497-509.

73. Hu, K, Yan, D., Bommes, B., Alliez, P., and Benes, B., (2017) Error-Bounded and Feature Preserving Surface Remeshing with Minimal Angle Improvement, in *IEEE Transactions on Visualization and Computer Graphics,* 23(12), pp2560-2573.

74. Guérin, E., Digne, J., Galin, E., Peytavie, A., Wolf, C., Benes, B., and Martinez, B., (2017). Interactive Example-Based Terrain Authoring with Conditional Generative Adversarial Networks, in *ACM Transactions on Graphics,* 36(6), Article 228, 13 pages.

75. Abdul-Massih, M., Yoo, I., and Benes, B., (2017). Motion Style Retargeting to Characters with Different Morphologies, in *Computer Graphics Forum,* 36(6), pp 86-99.

76. Marshall-Colon, A., Long, S. P., Allen, D. K., Allen, G., Beard, D. A., Benes, B., von Caemmerer, S., Christensen, A. J., Cox, D. J., Hart, J. C., Hirst, P. M., Kannan, K., Katz, D. S., Lynch, J. P., Millar, A. J., Panneerselvam, B., Price, N. D., Prusinkiewicz, P., Raila, D., Zhu, X.-G. (2017) Crops In Silico: Generating Virtual Crops Using an Integrative and Multi-scale Modeling Platform, in *Frontiers in Plant Science*, 8, 786.

77. Vojtech Krs, Ersin Yumer, Nathan Carr, Bedrich Benes, and Radomir Mech (2017) Skippy: Single View 3D Curve Interactive Modeling, in *ACM Transactions on Graphics,* 36(4), Article 128, 12 pages.

78. Cordonnier, G., Galin, E., Gain, J., Benes, B., Guerin, E., Peytavie A., and Cani, M.P., (2017) Authoring Landscapes by Combining Ecosystem and Terrain Erosion, in *ACM Transactions on Graphics,* 36(4), pp 134:1-134:12.

79. Cordonnier, G., Cani, M.P., Benes, B., Braun, J., and Galin E., (2017) Sculpting Mountains: Interactive Terrain Modeling based on Subsurface Geology, in *IEEE Transactions on Visualization and Computer Graphics,* 24(5), pp 1756-1769.

80. Pirk, S., Krs, V., Hu, K., Deepak, S.R., Kang, H., Benes, B., Yoshiyasu, Y., and Guibas, L. J. (2017) Understanding and Exploiting Object Interaction Landscapes, in *ACM Transactions on Graphics,* 36(3).

81. Hädrich, T., Benes, B., Deussen, O., and Pirk, S (2017) Interactive Modeling and Authoring of Climbing Plants, in *Computer Graphics Forum,* 36(2), pp 49-61. **Honorable mention from Best Paper Committee**

82. Fišer, M., Ravi, J., Benes, B., Shi, B., and Hirst, P (2017) IMapple: a source-sink developmental model for 'Golden Delicious' apple trees, in *Acta Horticulturae,* 1160, pp51-60.

83. Magana, A., Sanchez, K. L., Shakik, U. A. S., Jones, G. M., Tan, H. Z., Guayaquil, A., and Benes, B., (2017) Exploring Multimedia Principles for Supporting Conceptual Learning of Electricity and Magnetism with Visuohaptic Simulations, in *Computers in Education Journal,* 8(2) pp 8-23.

84. Shaikh, U. A. S., Magana, A. J., Neri, L., Escobar-Castillejos, D., Noguez, J., and Benes, B. (2017). Undergraduate students' conceptual interpretation and perceptions of haptic-enabled learning experiences, in *International Journal of Educational Technology in Higher Education,* 14(1), 15

85. Benes, B., Kasik, D. J., Li, W., and Zhang, H. (2017). Computational Design and Fabrication, in *IEEE Computer Graphics and Applications,* 37(3), 32–33.

86. Nishida, G., Garcia-Dorado, I., Aliaga, D.G., Benes, B., and Bousseau, A., (2016) Interactive Sketching of Urban Procedural Models, in *ACM Transactions on Graphics,* 35(4), Article 130, 11 pages.

87. Zhao, H., Gu, F., Huang, Q., Garcia Galicia, J.A., Chen, Y., Tu, C., Benes, B., Zhang, H., Cohen-Or, D., and Chen, B. (2016) Connected Fermat Spirals for Layered Fabrication, in *ACM Transactions on Graphics,* 35(4), Article 100, 10 pages.

88. Kim, H.; Dorantes, M. J.; Schulze, D. G. and Benes, B. (2016) Computer Graphics Procedural Modeling of Soil Structure, in *Digital Soil Morphometrics,* Springer International Publishing, pp 133-144.

89. Moore, B. A.; Yoo, I.; Tyrrell, L. P.; Benes, B. Fernandez-Juricic, E. (2016) FOVEA: A New Program to Standardize the Measurement of Foveal Pit Morphology, in *PeerJ,* 4, e1785.

90. Abdul-Massih, M., Yoo, I., and Benes, B., (2016). Motion Style Retargeting to Characters with Different Morphologies, in *Computer Graphics Forum,* 36(6), pp86-99.

91. Escobar-Castillejos, D., Noguez, J., Neri, L., Magana, A., and Benes, B., (2016). A Review of Simulators with Haptic Devices for Medical Training, in *Journal of Medical Systems,* 40(4), pp 1-22.

92. Cordonnier, G., Braun, J., Cani, MP., Benes, B., Galin, E., Peytavie, A., and Guerin, E., (2016). Large Scale Terrain Generation from Uplift and Erosion, in *Computer Graphics Forum,* 35(2), pp 165-175.

93. Chen, X., Zhang, H., Lin, J., Hu, R., Lu, L., Huang, Q., Benes, B., Cohen-Or, D., and Chen B., (2015). Dapper: Decompose-and-Pack for 3D Printing, in *ACM Transactions on Graphics,* 34(6), Article 213 12 pages.

94. Grosbellet, F., Peytavie, A., Guerin, E., Galin, E., Merillou, S., and Benes, B., (2015) Environmental Objects for Authoring Procedural Scenes, in *Computer Graphics Forum,* 35(1), pp 296-308.

95. Emilien, A., Vimont, U., Cani, M.P., Poulin, P., and Benes, B., (2015) WorldBrush: Interactive Example-based Synthesis of Procedural Virtual Worlds, in *ACM Transactions on Graphics,* 34(4), Article 106, 11 pages.

96. Demir, I., Aliaga, D. G., and Benes, B., (2015) Coupled Segmentation and Similarity Detection on Architectural Models, in *ACM Transactions on Graphics,* 34(4), Article 104, 11 pages.

97. Skorkovska, V., Kolingerova, I., and Benes, B., (2015) Hydraulic Erosion Modeling on a Triangular Mesh, in *Surface Models for Geosciences Lecture Notes in Geoinformation and Cartography,* pp 237-247.

98. Génevaux, J.D., Galin, E., Peytavie, A., Guérin, E., Briquet, C., Grosbellet, F., and Benes, B., (2015), Terrain Modeling from Feature Primitives, in *Computer Graphics Forum,* 34(2) pp 198-210.

99. Kratt, J, Spicker, M., Guayaquil, A., Fiser, M., Pirk, S., Deussen, O., Hart, J.C., and Benes, B., (2015) Woodification: User-Controlled Cambial Growth Modeling, in *Computer Graphics Forum,* 34(2), pp 361-372.

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5. Lee, JJ., Li, B., Beery, S., Huang, J., Fei, S., Yeh, RA, and Benes, B., (2024) Tree-D Fusion: Simulation-Ready Tree Dataset from Single Images with Diffusion Priors *European Conference on Computer Vision*, 439-460

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Refereed Conference Papers in Education

1. Gu, Y., Garcia, M., Zhang, Y., Magana, A. J., Benes, B., and Popescu, V. (2024). An XR Environment for AI Education: Design and First Implementation. 2024 *IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)*, 157–162.

2. Adamo, N., Benes, B., Mayer, R. E., Lei, X., Wang, Z., Meyer, Z., and Lawson, A. (2021). Multimodal Affective Pedagogical Agents for Different Types of Learners, in *Intelligent Human Systems Integration,* pp 218–224 Springer International Publishing.

3. Felkel, P., Magana, A.J., Folta, M., Sears, A.G., and Benes, B., (2018) I3T: Using Interactive Computer Graphics to Teach Geometric Transformations, in *Proceedings of Eurographics Education Papers*

4. Neri, L., Magana, A., Noguez, J., Walsh, Y., Gonzalez-Nucamendi, A., Robledo-Rella, V., and Benes, B., (2018) Visuo-haptic Simulations to Improve Students' Understanding of Friction Concepts, in *Proceedings of the IEEE-ERM 48th Annual Frontiers in Education (FIE)*

5. Walsh, Y., Magana, A. J., Quintana, J. P., Krs, V., Silva Coutinho, G., Berger, E. J., Ngambeki, I., Efendy, E., and Benes, B. (2018). Designing visuohaptic simulations for promoting graphical representations and conceptual understanding of structural analysis, in *Proceedings of the IEEE-ERM 48th Annual Frontiers in Education (FIE)*

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7. Neri, L., Escobar-Castillejos, D., Noguez, J., Shaikh, U.A.S., Magana, A.J., and Benes, B. (2015). Improving the learning of physics concepts using haptic devices, in *Proceedings of the 45th Annual Frontiers in Education (FIE)*

Books and Book Chapters

1. Stava, O., and Benes, B., (2010) Connected Component Labeling in CUDA, Chapter in *GPU Computing Gems*
2. Stava, O., Benes, B., and Krivanek, J., (2009) Interactive Erosion Simulation on the Graphical Processing Unit, Chapter in ShaderX7 advanced rendering techniques, Charles River Media
3. Žára, J., Benes, B., Sochor, J., Felkel,P., (2004) Modern Computer Graphics 2nd edition, Computer Press **an official textbook of computer graphics in the Czech and Slovak Republic**
4. Žára, J., Benes, B., Felkel,P., (1998) Modern Computer Graphics, Computer Press
5. Žára, J., Benes, B., Limpouch, T., Werner, T., (1992) Computer Graphics - Principles and Algorithms, Grada 1992

Invited Presentations

2026 IEEE Agricultural Robotics and Automation Webinar #67, Can AI Help with the Reconstruction and Digital Twins of Vegetation?

2025 CZU Prague, AI-based Reconstruction and Digital Twins of Vegetation

2025 Keynote: CEIG 2025, Spain, Recent Advances in Computer Graphics Vegetation Modeling

2025 Keynote: VCAI Kiel University, Germany, Plant Phenotyping

2025 Universidad Rey Juan Carlos, Madrid, Spain, Shape, Physics, and Function of Trees in Computer Graphics

Comenius University, Bratislava, Slovakia, Recent Advances in Computer Graphics Vegetation Modeling

2025 Colombia, Catedra Europa Universidad del Norte Colombia (virtual), AI-based Generation of Digital Twins of Vegetation

2025 North Central Forest Pest Workshop, Digital Technology for Forest Health, AI-Based Digital Phenotyping and 3D Geometry Reconstruction for Tree Digital Twins

2025 Purdue University, Open Ag Technology and Systems Center conference, 3D Geometry Reconstruction and Digital Twins in AI Phenotyping

2025 Purdue University, Purdue Workshop on Digital Twins Innovation, Digital Twins of Plants

2024 TU Vienna, Symposium on Geometry and Computational Design, Geometric Models of Plants in AI Phenotyping

2024 Purdue University, Data-Driven Seminar Series, Generative AI for Digital Twin Reconstruction

2024 Keynote: HiVisComp, A Deep Look at Biological Tree Digital Twins

2024 University of Missouri St. Louis, Reconstruction and Generation of Shape and Appearance of Biological Trees

2024 Czech Technical University in Prague, Bridging the Sim2Real Gap for Geometric Models in AI Phenotyping

2021 Yale University, Generative Methods in Computer Graphics (virtual talk)

2021 Purdue Digital Forestry Initiative, Deep Learning-based Reconstruction of Tree Geometry from Images and Point Clouds (virtual talk)

2020 Mexican International Conference on AI, (one day tutorial) Inverse Procedural Modeling in Computer Graphics (virtual talk)

2020 University of Nebraska-Lincoln, Modeling Plants in Computer Graphics

2019 Shenzhen University, China – A State of the Art in Digital Terrain Modeling

2018 Shenzhen University, China – Modeling Plant Life in Computer Graphics

2018 Keynote: COMPDES, University of San Carlos, Costa Rica

2018 University of Magdalena Colombia – Geometric Models in Additive Manufacturing

2018 Purdue University - Digital Agriculture Forum, Inverse Procedural Modeling

2017 Czech Technical University in Prague – Virtual Life of Plants

2015 Tecnológico de Monterrey - Inverse Procedural Modeling

2014 Indiana Horticultural Congress - Self-Adapting Botanical Tree Models in Comp. Graphics

2013 INRIA Grenoble, IMAGINE - Inverse Procedural Modeling

2013 Czech Technical University in Prague - Inverse Procedural Modeling

2012 University of San Juan Bogota - Complex Cities, Biologically-Based Plants, and Terrain Modeling for Computer Graphics

2011 Back to Class - New and Improved: How Computer Graphics Technology is Changing Everyday Life - Purdue President's Council

2011 Keynote: Siggraph Bogota

2011 Delft University - Inverse Procedural Modeling

2011 The Best of Eurographics at FMX - 16th Conference on Animation, Effects, Games and Interactive Media

2011 Department of Computer Science, University of Konstanz Germany

2010 Virtual Landscaping, at the International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision

2009 Computer Graphics Applications in Forestry Products, at Purdue University, Department of Forestry

2007 Hydraulic Erosion in Computer Graphics at Brigham Young University, Department of Computer Science

2006 Keynote: ACM Spring Conference on Computer Graphics

2005 Computer Graphics at the V Simposium de Computación

2005 Hydraulic Erosion at St. Louis University, Department of Computer Science

2004 Computer Graphics, Segundo Congreso de Ingenieria en Sistemas Computacionales Instituto Tecnológico Superior de Poza Rica, México

2003 Artificial Life and Computer Graphics at Telecomunicaciones Electrónica y Computación, México

2000 Artificial Life and Computer Graphics at Mexican International Conference on Artificial Intelligence, MICAI 2000

1999 Virtual Plants, Charles University Prague, Faculty of Biology, Czech Republic

1995 Modeling of plant development Technical University Delft, Netherlands

Sponsored Research

Using Extended Reality Simulations to Support Students in Understanding Abstract STEM Concepts
National Science Foundation, co-PI
$900,000 (33% of total), 2025-2028

Collaborative Research IIBRP VR-Bio-Talk VR Voice-Controlled Visual Analytics Platform for Plant Digital Twins
National Science Foundation, PI
$2,000,000 (25% of total), 2024-2027

Collaborative Research TRTech-PGR Digital Ideotype for Optimal Canopy Architecture
National Science Foundation, PI
$2,000,000 (25% of total), 2024-2027

Optimizing Soybean Canopy Architecture for Efficient Light and Water Use Under Climate Change
National Institute of Food and Agriculture, co-PI
$986,363 (22% of total), 2024-2027

Improving Forest Management Through Automated Measurement of Tree Geometry
National Institute of Food and Agriculture, co-PI
$598,947 (33% of total), 2024-2027

Creating a High-Performance Computing Virtual Environment for Artificial Intelligence Education
National Science Foundation, co-PI
$400,000 (25% of total), 2023-2025

Species and image-conditioned 3D tree generation with diffusion models
Google, co-PI
$15,000 (50% of total), 2023-2024

Productive Online Teamwork Engagement Through Intelligent Mediation
National Science Foundation, co-PI
$850,000 (35% of total), 2021-2024

Promoting Economic Resilience and Sustainability of the Eastern U.S. Forests
National Institute of Food and Agriculture, co-PI
$10,000,000 (2% of total), 2021-2024

Engaging Family Forests to Improve Climate-Smart Commodities
National Institute of Food and Agriculture, co-PI
$20,000,000 (1% of total), 2021-2024

Optimizing 3D Canopy Architecture for Better Crops
Agricultural Genome to Phenome Initiative, PI
$20,000, 2021-2022

Crops in Silico
Foundation for Food and Agricultural Research, co-PI
$5,000,000 (8% of total), 2019-2022

Elements: Data: Integrating Human and Machine for Post-Disaster Visual Data Analytics: A Modern Media-Oriented Approach
National Science Foundation/OAC, co-PI
$597,955 (30% of total), 2019-2022

Functional Proceduralization of 3D Geometric Models
National Science Foundation/CISE/CHS, co-PI
$499,937 (50% of total), 2018-2022

Multimodal Affective Pedagogical Agents for Different Types of Learners
National Science Foundation/CISE/IIS, co-PI
$758,823 (total), $498,823 (Purdue, 50% of Purdue part) 2018-2022

Development of a 3D Printer for Polymer Structure and Polymer Computation - Purdue PolymerMakers
National Science Foundation/CNS/MRI, co-PI
$1,867,017 (20% of total), 2017-2022

Inverse Procedural Material Modeling for Battery Design
National Science Foundation/CISE/IIS, PI
$250,000 (total) $150,000 (Purdue, 50% of Purdue part), 2017-2018

Solution for Predictive Physical Modeling in CDTE and Other Thin-Film PV Technologies
Department of Energy, co-PI
$325,081 (total), $160,051 (Purdue, 100% of Purdue part) 2016-2019

CDS&E: Enabling Time-critical Decision-support for Disaster Response and Structural Engineering
National Science Foundation/CMMI, co-PI
$299,999 (40% of total) 2016-2019

Haptic-Based Learning Experiences as Cognitive Mediators for Conceptual Understanding and Representational Competence in Engineering Education
National Science Foundation/EEC, co-PI
$325,081 (25% of total), 2016-2019

Enhancing Computer Graphics Education with Many Integrated Core Computing
Intel Inc., PI
$20,000 (100% of total) unrestricted gift, 2014-2017

Software Analysis for 3D Printing
Siemens, PI
$55,000 (100% of total), 2014-2015

Optimizations for Additive Manufacturing, Advancing Purdue Research Enterprise
Purdue University, PI
$34,000 (100% of total), 2014-15

Integrating Spatial Educational Experiences (Isee) - Mapping a New Approach to Teaching and Learning Soil Science
USDA/HECG, co-PI
$629,619 (6% of total), 2013-2015

Procedural Modeling
Adobe Research, PI
$150,000 (100% of total), unrestricted gift 2008-2021

Integrating Spatial Education Experience (ISEE) into Crop, Soil, and Environmental Science Curricula
USDA/HECG, co-PI
$312,607 (5% of total), 2008-2011

Integrating Behavioral, Geometrical and Graphical Modeling to Simulate and Visualize Urban Areas,
National Science Foundation/CISE/IIS, co-PI
$990,000 (total), $449,818 (Purdue, 50% of Purdue part), 2010-2013

Urban Simulation Visualization
Metropolitan Transportation Commission, co-PI
$285,000 (50% of total), 2010-2013

A Global High-Resolution Fossil Fuel CO_2 Inventory Built from assimilation of in Situ and Remotely-Sensed Datasets to Advance Satellite Greenhouse Gas Detection Support Systems
NASA, co-PI
$997,440 (20% of total), 2007-2011

Service

Journal Editorial Boards

2022-present Editor-in-Chief of Graphical Models (Elsevier)

2020-2022 The Coaching and Resource Network Mentor (Purdue University)

Jan. 2018-Dec. 2021 Editor-in-Chief of Computer Graphics Forum (Willey)

2021-2023 Associate Editor of Transactions on Games (IEEE)

2018-present Associate Editor of in Silico Plants (Oxford Academic)

2014-2017 Associate Editor of Computer Graphics Forum (Blackwell)

2012-2024 Associate Editor of Computers & Graphics (Elsevier)

2012-2016 Associate Editor of Computer Animation and Virtual Worlds (Wiley)

2016 Associate Editor of Computer Graphics Applications,
Special Issue on Computational Design and Fabrication Meet Computer Graphics (IEEE)

2012 Associate Editor of Computers & Graphics,
Special Issue on Procedural Modeling (Elsevier)

Conference Chair

2017 Eurographics, full papers chair

Program Committees

2024 Siggraph Asia, Best Papers Committee member

2024 Siggraph, Best Papers Committee member

2019 International Conference on Geometric Modeling and Processing, PC member

2017 VisiGrapp, PC member

2015-present Symposium on Geometry Processing, PC member

2015, 2024 Siggraph Asia, PC member

2014, 17-21 Workshop on Procedural Content Generation in Games, PC member

2013, 14, 17, 21 Siggraph, PC member

2012, 13 Extreme Science and Engineering Discovery Environment (XSEDE), PC member

2012-present Computer Graphics International (CGI), PC member

2007, 10, 12-17 Eurographics, PC member

2007 Eurographics Animation Theater, PC member

2006-2010 Eurographics Workshop on Natural Phenomena, PC member

2005 Central European Multimedia and Virtual Reality Conference, PC member

2004-2013 Workshop in VR Interactions and Physical Simulations, PC member

Journal Reviewing

2017-present Journal of Microscopy

2016-present Digital Applications in Archaeology and Cultural Heritage

2016-present Plos One

2015-present Shape Modeling International

2015-present Computer Aided Design

2015 ACM Cultural Heritage

2015-present Additive Manufacturing

2012-present IEEE Transactions on Visualization and Computer Graphics

2011 ACM Journal of Computing and Cultural Heritage

2011 International Journal of Computational Fluid Dynamics

2010-present IEEE Computer Graphics & Applications

2009 Journal of Plant Physiology

2008 Journal of Virtual Reality and Broadcasting

2009-present Journal of Pattern Recognition

2009-present Journal of Computer Graphics and Virtual Worlds

2005-present ACM Transactions on Graphics

2005-present Computer Graphics Forum

2007-present Computer Graphics and Visualization

2002-2003 ACM SIGGRAPH Course

Proposal Reviewing

Natural Sciences and Engineering Research Council of Canada

King Abdullah University of Science and Technology

National Science Foundation

National Institutes of Health

Consejo Nacional de Ciencia y Tecnología (Mexico)

Czech Ministry of Education (Czech Rep)

Outreach

2023-2023 Faculty Search Chair (Purdue Computer Science)

2023-2023 Head of Department Search Member (Purdue Computer Science)

2020-2021 Graduate Chair (Purdue Computer Science)

2020-2021 Head of the search for HCI (Purdue Polytechnic)

2018-present Promotion and Tenure Committee (Purdue Polytechnic)

2017-2019 Research Integrity Committee (Purdue Provost)

2017-2018 Graduate Chair (Purdue Computer Graphics Technology)

2015-2017 Graduate Council (Purdue University)

2015-2017 Executive Committee Computational Interdisciplinary Graduate Programs (Purdue University)

2014-2016 Academic Senate (Purdue College of Technology)

2014-present Grade Appeal Committee (Purdue Polytechnic)

2013-2014 Search and Screen committee (Purdue C&IT)

2012-2013 Head of the search for Associate Dean of Research (Purdue College of Technology)

2011-2012 Graduate chair (Purdue Computer Graphics Technology)

2011-2013 Grievance committee (Purdue College of Technology)

2011-2012 Assistant head of department (Purdue Computer Graphics Technology)

2010-2013 Grievance committee (Purdue Computer Graphics Technology)

2005-2007 Curriculum committee (Purdue Computer Graphics Technology)

2005-2018 Search and Screen committee (Purdue Computer Graphics Technology)

Professional societies

IEEE, Senior member

ACM, Senior member

Eurographics, member

Teaching and Students

Course Development

Geometric Modeling(CS 532), Graduate Course, 2023

Artificial Intelligence for Computer Graphics (CGT 581-AI4CG), Graduate Course, 2021

Advanced Computer Graphics (CS 434), Graduate course, 2021

Generative Methods in Computer Graphics (CS 590-CGS), Graduate Course, 2020

Foundations of Computer Graphics Technology (CGT 101), Undergraduate Course, 2019

Parallel graphics and simulation (CGT 581-I), Graduate course, 2017

Geometric modeling (CGT 581-G), Graduate course, 2014, 2015, 2018

Graphics processing unit computing (CGT 620), Graduate course, 2010, 2011, 2013, 2014, 2017, 2020

Applied perceptualization (CGT 581-8), Graduate course, 2010, 2011, 2016

Introduction to computer graphics Programming (CGT 215), Undergraduate course, 2006, 2008-21

Computer graphics programming (CGT 520), Graduate course, 2006, 2007, 2008, 2009, 2010, 2012, 2016

Advanced computer graphics programming (CGT 521), Graduate course, 2008, 2009, 2010, 2013

Digital lighting and rendering (CGT 340), Undergraduate course, 2005, 2006-2x, 2007-2x, 2008-2x, 2009, 2012

The development of graphics in technology (CGT 511), 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012

Programming in OpenGL (ITESM, Mexico), 2002, 2003, 2004

Realistic Image Synthesis (ITESM, Mexico), 2002, 2003

Teaching

(S-spring, F-fall, CS - Computer Science at Purdue, CGT-Comp. Graphics Technology at Purdue, ITESM-Tec de Monterrey México)

Generative Methods in Computer Graphics (CS 590 CGS), Graduate Course
F23 (20 Students)

Interactive Computer Graphics (CS 535), Graduate Course
F22 (35 Students)

Advanced Computer Graphics (CS 434), Graduate Course
S22 (35 Students)

Artificial Intelligence for Computer Graphics (CGT 581-AI4CG), Graduate Course, CGT
F21 (20 Students)

Advanced Computer Graphics (CS 434), Graduate Course, CS
S21 (11 Students)

Generative Methods in Computer Graphics (CS 590-CGS), Graduate Course, CS
S20 (15 Students)

Foundations of Computer Graphics Technology (CGT 101), Undergraduate course, CGT
F19 (149 students)

Geometric modeling (CGT 581-G), Graduate course, CGT
S18 (12 students), F15 (10 students), F14 (6 students)

Parallel Graphics and Simulation (CGT 581-I), Graduate course, CGT
S17 (6 students)

Advanced Computer Graphics Programming (CGT 521), Graduate course, CGT
F12 (9 students), S12 (8 students), S10 (13 students, S09 (16 students), F06 (12 students)

Computer Graphics Programming (CGT 520), Graduate course, CGT
F16 (14 students), F11 (8 students), F10 (8 students), F09 (8 students), S08 (12 students), S07 (10 students)

The development of graphics in technology (CGT 511), Graduate course, CGT
F12 (22 students), F11 (16 students), F10 (20 students), F09 (23 students), F08 (15 students), F07 (7 students), F06 (11 students)

Graphics processing unit computing (CGT 620), Graduate course, CGT
F20 (10 students), F14 (5 students), S13 (6 students), F11 (11 students), S11 (5 students), S10 (9 students)

Applied Perceptualization (CGT 581-8), Graduate course, CGT
S16 (10 students), S11 (14 students)

Introduction to Computer Graphics Programming (CGT 215), Undergraduate course, CGT
F20 (81 students), S19 (40 students), F19 (149 students), F18 (150 students), S18 (35 students), F17 (60 students), S16 (32 students), F15 (53 students), S15 (29 students), S06 (14 students)

Digital Lighting and Rendering (CGT 340), Undergraduate course, CGT
S13 (17 students), S09 (23 students), F08 (27 students), S08 (25 students), F07 (34 students), S07 (27 students), F06 (14 students), S06 (18 students), F05 (30 students)

Programming in OpenGL, Graduate course, ITESM
F04 (17 students), S04 (9 students), F02 (22 students), S02 (9 students)

Real Time Computer Graphics, Graduate course, ITESM
F03 (16 students)

Realistic Image Synthesis, Graduate course, ITESM
F03 (6 students)

Data Structures, Undergraduate course, ITESM
F03 (30 students), F02 (20 students), S02 (25 students)

Current Graduate Students

Yunyu Liu (Purdue CS), PhD student

Zhaopeng Wang (Purdue CS), PhD student

Zhanyu Yang (Purdue CS), PhD student

Jorge Askur Vazquez Fernandez (Purdue CS), PhD student

Jae Joong Lee (Purdue CS), PhD student

Bosheng Li (Purdue CS), PhD student

Xiaochen Zhou (Purdue CS), PhD student

Zhiquan Wang (Purdue CS), PhD student

Ian Andrew Ostermann (CS), PhD student

Graduated Students

1. *Ondrej Stava*
   Degree: (Polytechnic) PhD, Jul 2012
   Research project: Inverse procedural modeling of trees
   Currently at: Google, Inc.

2. *Juraj Vanek*
   Degree: (Polytechnic) PhD, Apr 2014
   Research project: 3D Model Optimization for 3D Printing
   Currently at: Arevo Labs, Inc.

3. *Michel Abdul*
   Degree: (Polytechnic) PhD, Jul 2014
   Research project: Motion Style Retargeting
   Currently at: Square Enix, Inc.

4. *Innfarn Yoo*
   Degree: (Polytechnic) PhD, Jul 2015
   Research project: Motion Pipeline: Searching, Editing, Representation, and Synthesis.
   Currently at: Nvidia, Inc.

5. *Jorge Garcia*
   Degree: (Polytechnic) PhD, Jul 2017
   Research project: 3D Printing Speed Optimization by Minimizing Void Paths
   Currently at: Nvidia, Inc.

6. *Hansoo Kim*
   Degree: (Polytechnic) PhD, Dec 2017
   Research project: Edge-based inverse procedural texture synthesis
   Currently at: Google, Inc.

7. *Vojtech Krs*
   Degree: (Polytechnic) PhD, May 2019
   Research project: Inverse Procedural Modeling
   Currently at: Adobe Research

8. *Hao Kang*
   Degree: (Polytechnic) PhD, May 2019
   Currently at: Wormplex AI Research

9. *Suren Deepak Rajasekaran*
   Degree: (Polytechnic) PhD, May 2019
   Research project: Perceptual Metrics for Visual Quality of Trees
   Currently at Sony Research

10. *Mathieu Gaillard*
    Degree: (CS) PhD, May 2022
    Research project: Inverse and Autodifferentiable Procedural Modeling
    Adobe Research

11. *Yichen Sheng*
    Degree: (CS) PhD, May 2024
    Research project: Deep Neural Impainting and Shadow Generation in Images
    Nvidia

12. Served on PhD committees of 42 PhD students (CTU Prague, Delft University, Inria, King Abdullah University of Science and Technology, Purdue CS, Purdue Mechanical Eng., and Purdue Materials Eng.)

13. Graduated 54 MS students with thesis.

14. Served on MS committees of 51 MS students with thesis.