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Research outputs

A systematic comparison between FEBio and PolyFEM for biomechanical systems

Martin, L., Jain, P., Ferguson, Z., Gholamalizadeh, T., nsv780, nsv780, Erleben, Kenny, Panozzo, D., Abramowitch, S. & Schneider, T., 2024, In: *Computer Methods and Programs in Biomedicine*. 244, 14 p., 107938.

Differentiable Rendering as a Way to Program Cable-Driven Soft Robots

Arnavaz, Kasra & Erleben, Kenny, 2024, [arXiv.org](https://arxiv.org/abs/2405.10000), 10 p.

A hybrid approach to full-scale reconstruction of renal arterial network

Xu, Peidi, von Holstein-Rathlou, Niels-Henrik, Sogaard, S. B., Gundlach, C., Sorensen, Charlotte Mehlin, Erleben, Kenny, Sosnovtseva, Olga & Darkner, Sune, 9 May 2023, In: *Scientific Reports*. 13, 1, 15 p., 7569.

Collision-constrained deformable image registration framework for discontinuity management

Alscher, Thomas Michael, Erleben, Kenny & Darkner, Sune, 2023, In: *PLoS ONE*. 18, 8, 15 p., e0290243.

Deep Learning-Assisted Localisation of Nanoparticles in synthetically generated two-photon microscopy images

Netterstrøm, R., Kutuzov, Nikolay, Darkner, Sune, Pallesen, M. J., Lauritzen, Martin, Erleben, Kenny & Lauze, Francois Bernard, 2023, [arXiv.org](https://arxiv.org/abs/2305.10000), 1 p.

Deep-learning-based segmentation of individual tooth and bone with periodontal ligament interface details for simulation purposes

Xu, Peidi, Gholamalizadeh, T., nsv780, nsv780, Darkner, Sune & Erleben, Kenny, 2023, In: *IEEE Access*. 11, p. 102460-102470

Differentiable Depth for Real2Sim Calibration of Soft Body Simulations

Arnavaz, Kasra, Nielsen, M. K., Kry, P. G., Macklin, M. & Erleben, Kenny, 2023, In: *Computer Graphics Forum*. 42, 1, p. 277-289 13 p.

Extremely Weakly-Supervised Blood Vessel Segmentation with Physiologically Based Synthesis and Domain Adaptation

Xu, Peidi, Lee, B., Sosnovtseva, Olga, Sorensen, Charlotte Mehlin, Erleben, Kenny & Darkner, Sune, 2023, *Medical Image Learning with Limited and Noisy Data - 2nd International Workshop, MILLanD 2023, Held in Conjunction with MICCAI 2023, Proceedings*. Xue, Z., Antani, S., Zamzmi, G., Yang, F., Rajaraman, S., Liang, Z., Huang, S. X. & Linguraru, M. G. (eds.). Springer, p. 191-201 (Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), Vol. 14307 LNCS).

Pseudo-Label Guided Image Synthesis for Semi-Supervised COVID-19 Pneumonia Infection Segmentation

Lyu, F., Ye, M., Carlsen, J. F., Erleben, Kenny, Darkner, Sune & Yuen, P. C., 2023, In: *IEEE Transactions on Medical Imaging*. 42, 3, p. 797-809

SE(3) Group Convolutional Neural Networks and a Study on Group Convolutions and Equivariance for DWI Segmentation

Liu, Renfei, Lauze, Francois Bernard, Bekkers, E. J., Erleben, Kenny & Darkner, Sune, 2023, *Research Square*, 32 p.

cRedAnno+: Annotation Exploitation In Self-Explanatory Lung Nodule Diagnosis

Lu, J., Yin, C., Erleben, Kenny, Nielsen, Michael Bachmann & Darkner, Sune, 2023, *2023 IEEE International Symposium on Biomedical Imaging, ISBI 2023*. IEEE Computer Society Press, (Proceedings - International Symposium on Biomedical

Imaging, Vol. 2023-April).

Open-Full-Jaw: An open-access dataset and pipeline for finite element models of human jaw

Gholamalizadeh, T., nsv780, nsv780, Ferguson, Z., Schneider, T., Panozzo, D., Darkner, Sune, Makaremi, M., Chan, F., Lempel Søndergaard, P. & Erleben, Kenny, 1 Sep 2022, In: *Computer Methods and Programs in Biomedicine*. 224, 17 p., 107009.

Accuracy and consistency of intensity-based deformable image registration in 4DCT for tumor motion estimation in liver radiotherapy planning

Tascon-Vidarte, J. D., Stick, L. B., Josipovic, M., Risum, S., Jomier, J., Erleben, Kenny, Vogelius, Ivan R. & Darkner, Sune, Jul 2022, In: *PLoS ONE*. 17, 7 July, p. 1-15 e0271064.

A Direct Geometry Processing Cartilage Generation Method Using Segmented Bone Models from Datasets with Poor Cartilage Visibility

nsv780, nsv780, Nielsen, M. K., Tascon Vidarte, J. D., Darkner, Sune & Erleben, Kenny, 2022, *Computational Biomechanics for Medicine: Towards Translation and Better Patient Outcomes*. Springer, p. 155-169

Auto-segmentation of Hip Joints Using MultiPlanar UNet with Transfer Learning

Xu, Peidi, nsv780, nsv780, Gholamalizadeh, T., Nielsen, Michael Bachmann, Erleben, Kenny & Darkner, Sune, 2022, *Medical Image Learning with Limited and Noisy Data: First International Workshop, MILLand 2022 Held in Conjunction with MICCAI 2022 Singapore, September 22, 2022 Proceedings*. Zamzmi, G., Antani, S., Rajaraman, S., Xue, Z., Bagci, U. & Linguraru, M. G. (eds.). Springer Science and Business Media Deutschland GmbH, p. 153-162 10 p. (Medical Image Learning with Limited and Noisy Data, Vol. 13559).

Bundle geodesic convolutional neural network for diffusion-weighted imaging segmentation

Liu, Renfei, Lauze, Francois Bernard, Erleben, Kenny, Berg, Rune W. & Darkner, Sune, 2022, In: *Journal of Medical Imaging*. 9, 6, 14 p., 064002.

Contact and friction simulation for computer graphics

Andrews, S., Erleben, Kenny & Ferguson, Z., 2022, Association for Computing Machinery, Inc. 172 p.

Fast Vortex Particle Method for Fluid-Character Interaction

Meldgaard, A., Darkner, Sune & Erleben, Kenny, 2022, In: *OpenReview.net*. 2022, 7 p.

Fast Vortex Particle Method for Fluid-Character Interaction

Meldgaard, A., Darkner, Sune & Erleben, Kenny, 2022, *Proceedings of Graphics Interface 2022: Montréal, Quebec, 16 - 19 May 2022*. ACM Press, p. 84-91

Group Convolutional Neural Networks for DWI Segmentation

Liu, Renfei, Lauze, Francois Bernard, Bekkers, E. J. & Erleben, Kenny, 2022, In: *Proceedings of Machine Learning Research*. 2022, 1, p. 1-11

LibHip: An open-access hip joint model repository suitable for finite element method simulation

nsv780, nsv780, Gholamalizadeh, T., Ferguson, Z., Schneider, T., Nielsen, Michael Bachmann, Panozzo, D., Darkner, Sune & Erleben, Kenny, 2022, In: *Computer Methods and Programs in Biomedicine*. 226, 14 p., 107140.

Reducing Annotation Need in Self-explanatory Models for Lung Nodule Diagnosis

Lu, J., Yin, C., Krause, Oswin, Erleben, Kenny, Nielsen, Michael Bachmann & Darkner, Sune, 2022, *Interpretability of Machine Intelligence in Medical Image Computing*. Reyes, M., Abreu, PH. & Cardoso, J. (eds.). Springer, p. 33-43 (Lecture Notes in Computer Science, Vol. 13611).

A multi-patient analysis of the center of rotation trajectories using finite element models of the human mandible

Gholamalizadeh, T., Darkner, Sune, Søndergaard, P. L. & Erleben, Kenny, 2021, In: *PLoS ONE*. 16, 11 November, 16 p., e0259794.

Bundle Geodesic Convolutional Neural Network for DWI Segmentation from Single Scan Learning

Liu, Renfei, Lauze, Francois Bernard, Erleben, Kenny & Darkner, Sune, 2021, *Computational Diffusion MRI - 12th International Workshop, CDMRI 2021, Held in Conjunction with MICCAI 2021, Proceedings*. Cetin-Karayumak, S., Christiaens, D., Figini, M., Guevara, P., Gyori, N., Nath, V. & Pieciak, T. (eds.). Springer, p. 121-132 (Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), Vol. 13006 LNCS).

Cine-MRI Simulation to Evaluate Tumor Tracking

Tascón-Vidarte, J. D., Wahlstedt, I., Jomier, J., Erleben, Kenny, Vogelius, Ivan R. & Darkner, Sune, 2021, *Simulation and Synthesis in Medical Imaging - 6th International Workshop, SASHIMI 2021, Held in Conjunction with MICCAI 2021, Proceedings*. Svoboda, D., Burgos, N., Wolterink, J. M. & Zhao, C. (eds.). Springer, p. 131-141 (Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), Vol. 12965 LNCS).

Contact and friction simulation for computer graphics

Andrews, S. & Erleben, Kenny, 2021, *SIGGRAPH '21: ACM SIGGRAPH 2021 Courses, Proceedings*. Association for Computing Machinery, p. 1-124 2

Contact modeling from images using cut finite element solvers

Claus, S., Kerfriden, P., nsv780, nsv780, Darkner, Sune, Erleben, Kenny & Wong, Christian, 2021, In: *Advanced Modeling and Simulation in Engineering Sciences*. 8, 1, p. 1-23 13.

Coupling Friction with Visual Appearance

Andrews, S., Nassif, L., Erleben, Kenny & Kry, P. G., 2021, In: *Proceedings of the ACM on Computer Graphics and Interactive Techniques*. 4, 3, p. 1-20 3480138.

Global Position Prediction for Interactive Motion Capture

Schreiner, Paul, Perepichka, M., Lewis, H., Darkner, Sune, Kry, P. G., Erleben, Kenny & Zordan, V. B., 2021, In: *Proceedings of the ACM on Computer Graphics and Interactive Techniques*. 4, 3, p. 1-16 3479985.

Locking-Proof Tetrahedra

Franco, M., Ásgeirsson, Á. G., Erleben, Kenny & Rønnow, M. J. L., 2021, In: *ACM Transactions on Graphics*. 40, 2, p. 1-17 12.

OpenJaw Dataset

Gholamalizadeh, T., Darkner, Sune, Søndergaard, P. & Erleben, Kenny, 2021

gradSim: Differentiable simulation for system identification and visuomotor control

Jatavallabhula, K. M., Macklin, M., Golemo, F., Volet, V., Petrini, L., Weis, M., Considine, B., Parent-Lévesque, J., Xie, K., Erleben, Kenny, Pauli, L., Shkurti, F., Nowrouzezahrai, D. & Fidler, S., 2021. 25 p.

∇Sim: DIFFERENTIABLE SIMULATION FOR SYSTEM IDENTIFICATION AND VISUOMOTOR CONTROL

Jatavallabhula, K. M., Macklin, M., Golemo, F., Volet, V., Petrini, L., Weiss, M., Considine, B., Parent-Lévesque, J., Xie, K., Erleben, Kenny, Paull, L., Shkurti, F., Nowrouzezahrai, D. & Fidler, S., 2021. 25 p.

Local Optimization for Robust Signed Distance Field Collision

Macklin, M., Erleben, Kenny, Müller, M., Chentanez, N., Jeschke, S. & Corse, Z., 2020, In: *Proceedings of the ACM on Computer Graphics and Interactive Techniques*. 3, 1, 17 p., 8.

Mandibular Teeth Movement Variations in Tipping Scenario: A Finite Element Study on Several Patients

Gholamalizadeh, T., Darkner, Sune, Cattaneo, P. M., Søndergaard, P. & Erleben, Kenny, 2020. 10 p.

Primal/dual descent methods for dynamics

Macklin, M., Erleben, Kenny, Müller, M., Chentanez, N., Jeschke, S. & Kim, T. Y., 2020, In: *Computer Graphics Forum*. 39, 8, p. 89-100

The Matchstick Model for Anisotropic Friction Cones

Erleben, Kenny, Macklin, M., Andrews, S. & Kry, P. G., 2020, In: Computer Graphics Forum. 39, 1, p. 450-461

Solving inverse kinematics using exact Hessian matrices

Erleben, Kenny & Andrews, S., Feb 2019, In: Computers & Graphics. 78, p. 1-11

A Validated Physical Model For Real-Time Simulation of Soft Robotic Snakes

Gasoto, R., Macklin, M., Liu, X., Sun, Y., Erleben, Kenny, Onal, C. & Fu, J., 2019, *2019 International Conference on Robotics and Automation (ICRA)*. IEEE, p. 6272-6279

Automated acquisition of anisotropic friction

Dressel, K., Erleben, Kenny, Kry, P. & Andrews, S., 2019, *Proceedings - 2019 16th Conference on Computer and Robot Vision, CRV 2019*. IEEE, p. 159-165 7 p. 8781610

Data Driven Inverse Kinematics of Soft Robots using Local Models

Holsten, F., Engell-norregard, M. P., Darkner, Sune & Erleben, Kenny, 2019, *2019 International Conference on Robotics and Automation (ICRA)*. IEEE, p. 6251-6257

High fidelity simulation of corotational linear FEM for incompressible materials

Francu, M., Asgeirsson, A. & Erleben, Kenny, 2019, *Proceedings - MIG 2019: ACM Conference on Motion, Interaction, and Games*. Spencer, S. N. (ed.). Association for Computing Machinery, 6 p. a28

Non-smooth Newton methods for deformable multi-body dynamics

Macklin, M., Erleben, Kenny, Müller, M., Chentanez, N., Jeschke, S. & Makoviychuk, V., 2019, In: ACM Transactions on Graphics. 38, 5, 9 p., 140.

Methodology for Assessing Mesh-Based Contact Point Methods

Erleben, Kenny, Jul 2018, In: A C M Transactions on Graphics. 37, 3, 30 p.

Chunked Bounding Volume Hierarchies for fast digital prototyping using volumetric meshes

Schmidtke, R. & Erleben, Kenny, 2018, In: IEEE Transactions on Visualization and Computer Graphics. 24, 12, p. 3044-3057

Dendritic core crystallization in minor planets - an empirically constrained numerical simulation study

Esbensen, K., Haack, H., Erleben, Kenny & Misztal, M. K., 2018, p. 76. 1 p.

Foreword to the Special Section on VRIPHYS 2018

Andrews, S., Erleben, Kenny, Jaillet, F. & Zachmann, G., 2018, In: Computers and Graphics (Pergamon). 76, p. A3-A4

Local Models for Data Driven Inverse Kinematics of Soft Robots

Holsten, F. D., Darkner, S., Engell-Nørregård, M. P. & Erleben, Kenny, 2018, *Eurographics/ ACM SIGGRAPH Symposium on Computer Animation - Posters*. Skouras, M. (ed.). The Eurographics Association, 1 p.

A fast linear complementarity problem solver for fluid animation using high level algebra interfaces for GPU libraries

Andersen, M., Abel, S. M. N. & Erleben, Kenny, Dec 2017, In: Computers & Graphics. 69, p. 36-48 13 p.

Modeling virtual humans

Bender, J., Erleben, Kenny & Solenthaler, B., Nov 2017, In: IEEE Computer Graphics and Applications. 37, 6, p. 26-27 2 p.

A fast Linear Complementarity Problem (LCP) solver for separating fluid-solid wall boundary Conditions

Andersen, M., Abel, S. M. N. & Erleben, Kenny, 2017, *Workshop on Virtual Reality Interaction and Physical Simulation*. Jaillet, F. & Zara, F. (eds.). The Eurographics Association, p. 39-48 10 p.

A numerical strategy for finite element modeling of frictionless asymmetric vocal fold collision

Granados, A., Misztal, M. K., Brunskog, J., Visseq, V. & Erleben, Kenny, 2017, In: International Journal for Numerical Methods in Biomedical Engineering. 33, 2, 25 p., e02793.

Constraint reordering for iterative multi-body simulation with contact

Andrews, S., Erleben, Kenny & Teichmann, M., 2017. 2 p.

Inverse kinematics problems with exact Hessian matrices

Erleben, Kenny & Andrews, S., 2017, *Proceedings of the Tenth International Conference on Motion in Games*. Association for Computing Machinery, 6 p. 14

Rigid body contact problems using proximal operators

Erleben, Kenny, 2017, *Proceedings of the ACM SIGGRAPH / Eurographics Symposium on Computer Animation*. Association for Computing Machinery, 12 p. 13

Numerical methods for linear complementarity problems in physics-based animation

Abel, S. M. N. & Erleben, Kenny, 2015, Morgan & Claypool Publishers. 159 p. (Synthesis Lectures on Computer Graphics and Animation; No. 1, Vol. 7).

Conforming contact manifolds for multibody simulations

Visseq, V., Bonde, U., Erleben, Kenny & Darkner, Sune, 2014. 2 p.

Disjoint domains interactions framework for hyperelastic simulations

Bonde, U., Misztal, M. K., Visseq, V. & Erleben, Kenny, 2014. 2 p.

Finite element modeling of the vocal folds with deformable interface tracking

Granados, A., Brunskog, J., Misztal, M. K., Visseq, V. & Erleben, Kenny, 2014, *Forum Acusticum*. European Acoustics Association, 9 p.

Interactive simulation of rigid body dynamics in computer graphics

Bender, J., Erleben, Kenny & Trinkle, J., 2014, In: Computer Graphics Forum. 33, 1, p. 246-270 25 p.

Moving conforming contact manifolds and related numerical problems

Erleben, Kenny, 2014

Multiphase flow of immiscible fluids on unstructured moving meshes

Misztal, M. K., Erleben, Kenny, Bargteil, A., Fursund, J., Christensen, B. B., Bærentzen, J. A. & Bridson, R., 2014, In: I E E E Transactions on Visualization and Computer Graphics. 20, 1, p. 4-16 13 p.

Photon differential splatting for rendering caustics

Frisvad, J. R., Schjøth, L., Erleben, Kenny & Sporrying, Jon, 2014, In: Computer Graphics Forum. 33, 6, p. 252-263 12 p.

Numerical methods for linear complementarity problems in physics-based animation

Erleben, Kenny, 2013, *ACM SIGGRAPH 2013 Courses*. Association for Computing Machinery, 42 p. 8

RPI-MATLAB-simulator: a tool for efficient research and practical teaching in multibody dynamics

Williams, J., Lu, Y., Niebe, S., Andersen, Martin, Erleben, Kenny & Trinkle, J. C., 2013, *VRIPHYS 2013 - 10th Workshop on Virtual Reality Interactions and Physical Simulations*. Bender, J., Dequidt, J., Duriez, C. & Zachmann, G. (eds.). Eurographics Association, p. 71-80 10 p. (VRIPHYS 2013 - 10th Workshop on Virtual Reality Interactions and Physical Simulations).

Multiphase Flow of Immiscible Fluids on Unstructured Moving Meshes

Misztal, M. K., Erleben, Kenny, Bargteil, A., Fursund, J., Christensen, B. B., Bærentzen, J. A. & Bridson, R., Jul 2012, *EUROSCA'12 Proceedings of the 11th ACM SIGGRAPH / Eurographics conference on Computer Animation*. ACM, p. 97-106 10 p.

A joint-constraint model for human joints using signed distance-fields

Engell-Nørregård, M. P., Abel, S. M. N. & Erleben, Kenny, 2012, In: *Multibody System Dynamics*. 28, 1, p. 69-81 13 p.

Activation force splines

Engell-Nørregård, M. P. & Erleben, Kenny, 2012. 2 p.

GPU accelerated likelihoods for stereo-based articulated tracking

Friberg, R. M., Hauberg, S. & Erleben, Kenny, 2012, *Trends and Topics in Computer Vision: ECCV 2010 Workshops, Heraklion, Crete, Greece, September 10-11, 2010, Revised Selected Papers, Part II*. Kutulakos, K. N. (ed.). Springer, Vol. Part II. p. 359-371 13 p. (Lecture notes in computer science, Vol. 6554).

Interactive simulation of rigid body dynamics in computer graphics

Bender, J., Erleben, Kenny, Trinkle, J. & Coumans, E., 2012, *Eurographics 2012 - State of the Art Reports*. Cani, M-P. & Ganovelli, F. (eds.). Eurographics Association, 20 p.

Multiphase flow of immiscible fluids on unstructured moving meshes

Misztal, M. K., Erleben, Kenny, Bargteil, A., Fursund, J., Christensen, B. B., Bærentzen, J. A. & Bridson, R., 2012, *Proceedings of the ACM SIGGRAPH/Eurographics Symposium on Computer Animation*. Kry, P. & Lee, J. (eds.). Eurographics Association, p. 97-106 10 p.

A hyper elasticity method for interactive virtual design of hearing aids: a parallel method for general non-linear hyper elasticity modeling

Darkner, Sune & Erleben, Kenny, 2011, In: *Visual Computer*. 27, 6, p. 645-653 9 p.

A projected back-tracking line-search for constrained interactive inverse kinematics

Engell-Nørregård, M. P. & Erleben, Kenny, 2011, In: *Computers & Graphics*. 35, 2, p. 288-298 11 p.

Distance-field based joint-limits for biomechanic joint models

Engell-Nørregård, M. P., Niebe, S. M. & Erleben, Kenny, 2011.

Interactive rigid body contact force problems: experiences on bridging the gap between eye-candy and real-world

Erleben, Kenny, 2011. 2 p.

Interactive rigid body dynamics using a projected gauss-seidel subspace minimization method

Silcowitz, M., Niebe, S. & Erleben, Kenny, 2011, *Computer Vision, Imaging and Computer Graphics: Theory and Applications - International Joint Conference, VISIGRAPP 2010, Revised Selected Papers*. p. 218-229 12 p. (Communications in Computer and Information Science, Vol. 229 CCIS).

Mathematical foundation of the optimization-based fluid animation method

Erleben, Kenny, Misztal, M. K. & Bærentzen, J. A., 2011, *Proceedings of the 2011 ACM SIGGRAPH/Eurographics Symposium on Computer Animation*. Spencer, S. N. (ed.). Association for Computing Machinery, p. 101-110 10 p.

Preface

Bender, J., Erleben, Kenny & Galin, E., 2011, In: *VRIPHYS 2011 - 8th Workshop on Virtual Reality Interactions and Physical Simulations*.

VRIPHYS 11: 8th Workshop on Virtual Reality Interactions and Physical Simulations

Bender, J. (ed.), Erleben, Kenny (ed.) & Galin, E. (ed.), 2011

A nonlinear vertex-based model for animation of two-dimensional dry foam

Kelager, M. & Erleben, Kenny, May 2010, *Proceedings of the Fifth International Conference on Computer Graphics Theory and Applications*. Richard, P., Braz, J. & Hilton, A. (eds.). INSTICC Press, p. 296-303 8 p.

A nonsmooth nonlinear conjugate gradient method for interactive contact force problems

Silcowitz, M., Abel, S. M. N. & Erleben, Kenny, 2010, In: *The Visual Computer*. 26, 6, p. 893-901 9 p.

A triangle bending constraint model for position-based dynamics

Kelager, M., Abel, S. M. N. & Erleben, Kenny, 2010, *Workshop in Virtual Reality Interactions and Physical Simulation "VRIPHYS" (2010)*. Erleben, K., Bender, J. & Teschner, M. (eds.). Eurographics Association, p. 31-37 7 p.

Contact point generation for convex polytopes in interactive rigid body dynamics

Silcowitz-Hansen, M., Abel, S. M. N. & Erleben, Kenny, 2010. 2 p.

Den digitale revolution: fortællinger fra datalogiens verden

Naur, P., Vinter, B., Hansen, Klaus, Mogensen, Torben Ægidius, Erleben, Kenny, Pisinger, D., Nielsen, Mads, Kringelbach, M., Pedersen, E. W., Blume, P., Helles, Rasmus, Andersen, Tariq Osman (ed.), Bansler, Jørgen P. (ed.), Clausen, H. R. (ed.), Jensen, I. H. (ed.) & Zachariasen, M. (ed.), 2010, København: Datalogisk Institut. 156 p.

Dense marker-less three dimensional motion capture

Haugberg, S., Jensen, B. R., Engell-Nørregård, M. P., Erleben, Kenny & Steenstrup Pedersen, Kim, 2010. 4 p.

Heuristic convergence rate improvements of the projected Gauss-Seidel method for frictional contact problems

Poulsen, M., Abel, S. M. N. & Erleben, Kenny, 2010, *WSCG 2010 : full papers proceedings*. Skala, V. (ed.). Vaclav Skala - Union Agency, p. 135-142 8 p.

Local joint-limits using distance field cones in euler angle space

Engell-Nørregård, M. P., Abel, S. M. N. & Erleben, Kenny, 2010. 4 p.

Normal and friction stabilization techniques for interactive rigid body constraint-based contact force computations

Silcowitz-Hansen, M., Abel, S. M. N. & Erleben, Kenny, 2010, *Workshop in Virtual Reality Interactions and Physical Simulation "VRIPHYS" (2010)*. Erleben, K., Bender, J. & Teschner, M. (eds.). Eurographics Association, p. 89-95 7 p.

Optimization-based fluid simulation on unstructured meshes

Misztal, M. K., Bridson, R., Erleben, Kenny, Bærentzen, J. A. & Anton, F., 2010, *Workshop in Virtual Reality Interactions and Physical Simulation "VRIPHYS" (2010)*. Erleben, K., Bender, J. & Teschner, M. (eds.). Eurographics Association, p. 11-20 10 p.

Photon differentials in space and time

Schjøth, L., Frisvad, J. R., Erleben, Kenny & Sporring, Jon, 2010, *Computer Vision, Imaging and Computer Graphics. Theory and Applications: International Joint Conference, VISIGRAPP 2010, Angers, France, May 17-21, 2010. Revised Selected Papers*. Richard, P. & Braz, J. (eds.). Springer, p. 274-286 13 p. (Communications in Computer and Information Science, Vol. 229).

Preface

Erleben, Kenny, Bender, J. & Teschner, M., 2010, In: *VRIPHYS 2010 - 7th Workshop on Virtual Reality Interactions and Physical Simulations*.

Proceedings of the Seventh Workshop on Virtual Reality Interactions and Physical Simulations, VRIPHYS 2010, Copenhagen, Denmark, 2010

Erleben, Kenny (ed.), Bender, J. (ed.) & Teschner, M. (ed.), 2010, Eurographics Association.

Projected Gauss-Seidel subspace minimization method for interactive rigid body dynamics: improving animation quality using a projected Gauss-Seidel subspace minimization method

Silcowitz-Hansen, M., Abel, S. M. N. & Erleben, Kenny, 2010, *Proceedings of the International Conference on Computer Graphics Theory and Applications (GRAPP 2010)*. Richard, P., Braz, J. & Hilton, A. (eds.). SCITEPRESS Digital Library, Vol. 1. p. 38-45 8 p.

Area and volume restoration in elastically deformable solids

Kelager, M., Fleron, A. & Erleben, Kenny, 1 Jan 2009, *Progress In Computer Vision And Image Analysis*. World Scientific Publishing Co., p. 381-400 20 p.

A Projected Non-linear Conjugate Gradient Method for Interactive Inverse Kinematics.

Engell-Nørregård, M. & Erleben, Kenny, 2009, *Proceedings MATHMOD 09 Vienna, ARGESIM Report no. 35*. Troch, I. & Breiteneker, F. (eds.).

Estimation of Joint types and Joint Limits from Motion capture data

Engell-Nørregård, M. P. & Erleben, Kenny, 2009, *WSCG '2009 : the 17th International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision in co-operation with Eurographics : University of West Bohemia, Plzen, Czech Republic, February 2-5, 2009: 17th International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision 2009, Computer Graphics, Visualization and Computer Vision 2009*. Scala, V. & Chen, M. (eds.). p. 9-16

GPU accelerated tandem traversal of blocked bounding volume hierarchy collision detection for multibody dynamics

Damkjær, J. & Erleben, Kenny, 2009, *VRIPHYS 09: 6th Workshop on Virtual Reality Interactions and Physical Simulations*. p. 115-124

Interactive inverse kinematics for human motion estimation

Engell-Nørregård, M. P., Hauberg, S., Lapuyade, J., Erleben, Kenny & Steenstrup Pedersen, Kim, 2009, *Vriphys 09: 6th Workshop on Virtual reality Interactions and Physical Simulations*. Prautzsch, H., Schmitt, A., Bender, J. & Teschner, M. (eds.). p. 77-84

Maximal independent set graph partitions for representations of body-centered cubic lattices

Erleben, Kenny, 2009, In: *Visual Computer*. 25, 5-7, p. 423-430 8 p.

Nonsmooth Newton method for Fischer function reformulation of contact force problems for interactive rigid body simulation

Silcowitz, M., Niebe, S. M. & Erleben, Kenny, 2009, *VRIPHYS 09: 6th Workshop on Virtual Reality Interactions and Physical Simulations*. p. 105-114

Smoke simulation for fire engineering using a multigrid method on graphics hardware

Glimberg, S., Erleben, Kenny & Bennetsen, J., 2009, *VRIPHYS 09: 6th Workshop on Virtual Reality Interactions and Physical Simulations*. European Association for Computer Graphics, p. 11-20

Spatial and Temporal Ray Differentials

Sparring, Jon, Schjøth, L. & Erleben, Kenny, 2009, Department of Computer Science: Department of Computer Science, University of Copenhagen. 14 p. (Technical Report; No. 04, Vol. 2009).

Tetrahedral Mesh Improvement Using Multi-face Retriangulation

Misztal, M. K., Bærentzen, J. A., Anton, F. & Erleben, Kenny, 2009, *Proceedings of the 18th International Meshing Roundtable*. Springer, p. 539-555 17 p.

Three dimensional monocular human motion analysis in end-effector space

Hauberg, S., Lapuyade, J., Engell-Nørregård, M. P., Erleben, Kenny & Steenstrup Pedersen, Kim, 2009, *Energy Minimization Methods in Computer Vision and Pattern Recognition: 7th International Conference, EMMCVPR 2009, Bonn, Germany, August 24-27, 2009. Proceedings*. Cremers, D., Boykov, Y., Blake, A. & Schmidt, F. R. (eds.). Springer, p. 235-248 14 p. (Lecture notes in computer science, Vol. 5681).

A non-smooth newton method for multibody dynamics

Erleben, Kenny & Ortiz, R., 2008, *Numerical Analysis and Applied Mathematics: International Conference on Numerical Analysis and Applied Mathematics 2008, Psalidi, Kos, Greece, September 16-20, 2008*. Simos, T. E., Psihoyios, G. & Tsitouras, C. (eds.). Springer, p. 178-181 4 p. (AIP Conference Proceedings; No. 1048).

Guessing tangents in normal flows

Markussen, Bo, Sporning, Jon & Erleben, Kenny, 2008, In: *Journal of Mathematical Imaging and Vision*. 31, 2-3, p. 195-205 11 p.

Inverse Kinematics using Quaternions: Graduate project, 7.5 ECTS, Supervisor: Kenny Erleben

Henriksen, Knud, Erleben, Kenny & Engell-Nørregård, M., 2008, Department of Computer Science: Museum Tusulanum . 22 p.

Signed Distance Fields Using Single-Pass GPU Scan Conversion of Tetrahedra

Erleben, Kenny & Dohlmann, H., 2008, *GPU Gems 3*. Nguyen, H. (ed.). Upper Saddle River, N.J.: Addison-Wesley, p. 741-763

Volumetric shells using path tracing

Erleben, Kenny, 2008. 8 p.

Boneless Pose Editing and Animation

Bærentzen, J. A., Hansen, K. E. & Erleben, Kenny, 2007, *Image Analysis: 15th Scandinavian Conference, SCIA 2007, Aalborg, Denmark, June 10-14, 2007*. Ersbøll, B. K. & Pedersen, K. S. (eds.). Springer, p. 562-571 (Lecture notes in computer science; No. 4522).

Line-Stepping for Shell Meshes

Erleben, Kenny & Sporning, Jon, 2007, *Image Analysis: 15th Scandinavian Conference, SCIA 2007, Aalborg, Denmark, June 10-14, 2007*. Ersbøll, B. K. & Pedersen, K. S. (eds.). Springer, p. 472-481 (Lecture notes in computer science; No. 4522).

Photon differentials

Schjøth, L., Revall Frisvad, J., Erleben, Kenny & Sporning, Jon, 2007, *GRAPHITE 2007: Proceedings of the 5th international conference on computer graphics and interactive techniques in Australia and Southeast Asia, December 1-4, 2007, Perth, Western Australia*. Association for Computing Machinery, p. 179-186

Photon differentials

Schjøth, L., Frisvad, J. R., Erleben, Kenny & Sporning, Jon, 2007, *Proceedings - GRAPHITE 2007, 5th International Conference on Computer Graphics and Interactive Techniques in Australasia and Southeast Asia*. p. 179-186 8 p. (Proceedings - GRAPHITE 2007, 5th International Conference on Computer Graphics and Interactive Techniques in Australasia and Southeast Asia).

Using Implicit Skeleton Shape Representations for Volumetric Shell Meshing

Erleben, Kenny, 2007, København: Museum Tusulanum. 34 p. (Rapport. Datalogisk Institut, Københavns Universitet; No. 07/04).

Velocity-based shock propagation for multibody dynamics animation

Erleben, Kenny, 2007, In: *ACM Transactions on Graphics*. 26, 2, 20 p.

SIMS 2004

Elmegaard, B., Sporning, Jon, Erleben, Kenny & Sørensen, K., Nov 2006, In: *Simulation Modelling Practice and Theory*. 14, 8, p. 1057-1058 2 p.

A Simple Plane Patcher Algorithm

Erleben, Kenny & Henriksen, Knud, 2006, 06/09 ed. Department of Computer Science, University of Copenhagen.

Ballet Balance Strategies

Pedersen, C., Erleben, Kenny & Sporning, Jon, 2006, In: *Simulation* (San Diego, Calif.). 14, 8, p. 1135-1142

Editorial

Elmegaard, B., Sporning, Jon, Sørensen, K. & Erleben, Kenny, 2006, In: *Simulation Modelling Practice and Theory. Proceedings of SIMS 2004*. 14, 8, p. 1057-1058

Proceedings of SIMS 2004

Elmegaard, B. (ed.), Sporning, Jon (ed.), Sørensen, K. (ed.) & Erleben, Kenny (ed.), 2006, Elsevier. (*Simulation Modelling Practice and Theory*; No. 8, Vol. 14).

Scan Conversion of Signed Distance Fields

Erleben, Kenny & Dohlmann, H., 2006, *Proceedings fra den 15. Danske Konference i Mønstergenkendelse og Billedbehandling*. 06/08 ed. Museum Tusulanum, p. 81-91

Sideways Stepping

Markussen, B., Sporning, Jon & Erleben, Kenny, 2006, *Proceedings fra den 15. Danske Konference i Mønstergenkendelse og Billedanalyse*. 06/08 ed. Museum Tusulanum, p. 80-80

A Multi-Scale Singularity Bounding Volume Hierarchy

Somchaipeng, K., Erleben, Kenny & Sporning, Jon, 2005, *Proceedings of WSCG*. <Forlag uden navn>, p. 179-186

Area and Volume Restoration in Elastically Deformable Solids

Kelager, M., Fleron, A. & Erleben, Kenny, 2005, In: *Electronic Letters on Computer Vision and Image Analysis (ELCVIA)*. 5, 3, p. 32-43

OpenTissue - An Open Source Toolkit for Physics-Based Animation

Erleben, Kenny, Sporning, Jon & Dohlmann, H., 2005, *ISC / NA-MIC / MICCAI Workshop on Open-Source Software*. p. -

Physics-based Animation

Erleben, Kenny, Sporning, Jon, Henriksen, Knud & Dohlmann, H., 2005, Hingham, Mass.: Charles River Media. 817 p.

Stable, Robust, and Versatile Multibody Dynamics Animation

Erleben, Kenny, 2005, Department of Computer Science, University of Copenhagen (DIKU).

The Adaptive Thin Shell Tetrahedral Mesh

Erleben, Kenny, Dohlmann, H. & Sporning, Jon, 2005, In: *Journal of W S C G*. 13, 1, p. 17-24

A Multi-Scale Singularity Bounding Volume Hierarchy

Somchaipeng, K., Erleben, Kenny & Sporning, Jon, 2004, 08 ed. Department of Computer Science, University of Copenhagen: Datalogisk Institut.

Ballet Balance Strategies

Pedersen, C., Erleben, Kenny & Sporning, Jon, 2004, *Proceedings of SIMS 2004*. Technical University of Copenhagen, p. 323-330

Contact Graphs in Multibody Dynamics Simulation

Erleben, Kenny & Dohlmann, H., 2004, *Proceedings of SIMS 2004*. Technical University of Copenhagen, p. 307-314

Contact Graphs in Multibody Dynamics Simulation

Erleben, Kenny, 2004, 04/06 ed. Copenhagen: Department of Computer Science, University of Copenhagen.

Proceedings of SIMS 2004

Elmegaard, B., Sporning, Jon & Erleben, Kenny, 2004, Denmark: Technical University of Copenhagen. 452 p.

Real-time Simulation of Smoke Using Graphics Hardware

Rørbech, M. & Erleben, Kenny, 2004, *SIMS 2004*. p. 331-338

Self-intersection with Cullide

Meyer, J., Boldt, N. & Erleben, Kenny, 2004, *SIMS2004*. p. 315-322

Simulation of Liquid-, Deformable- and Rigid-bodies

Boldt, N. & Erleben, Kenny, 2004, *Proceedings of SIMS*. Technical University of Copenhagen, p. 291-298

The Thin Shell Tetrahedral Mesh

Erleben, Kenny & Dohlmann, H., 2004, *Proceedings fra den 13. Danske Konference i Mønstergenkendelse og Billedanalyse*. 04/10 ed. Museum Tusulanum, p. 94-102

Collision Detection of Deformable Volumetric Meshes

Erleben, Kenny & Sporning, Jon, 2003, *Graphics Programming Methods, chapter 1.5*. Lander, J. (ed.). Charles River Media, p. 51-68

Scripted Bodies and Spline-driven Animation

Erleben, Kenny & Henriksen, Knud, 2003, *Graphics Programming Methods, chapter 1.4*. Lander, J. (ed.). Charles River Media, p. 37-50

An introduction to Approximating Heterogeneous Bounding Volume Hierarchies

Erleben, Kenny, 2002, 02/04 ed. Department of Computer Science, University of Copenhagen.

B-Splines

Erleben, Kenny & Henriksen, Knud, 2002, 02/17 ed. Department of Computer Science, University of Copenhagen. 36 p.

Module Based Design for Rigid Body Simulators

Erleben, Kenny, 2002, 02/06 ed. Department of Computer Science, University of Copenhagen. 20 p.

Scripted Bodies and Spline Driven Animation

Erleben, Kenny & Henriksen, Knud, 2002, 02/18 ed. Department of Computer Science, University of Copenhagen. 17 p.

Scripted Bodies and Spline Driven Animation

Erleben, Kenny & Henriksen, Knud, 2002, *Proceedings of Dynamic Simulation: Theory and Real-Life Applications Workshop*. Department of Computer Science, University of Copenhagen, 5 p.