David Levin

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Major interests:

- **Subdivision**
- **Moving Least Squares**
- **Multivariate Approximation Methods**
- **Numerical Integration**
- **CAGD**
- **Computer Graphics**
- **Convergence Acceleration**

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PAPERS:

Recent papers:

- **Regularity of generalized Daubechies wavelets reproducing exponential polynomials with real-valued parameters - ACHA, 2014 - with Nira Dyn, Ognyan Kounchev, Hermann Render**
- **A subdivision regression model for data analysis - International Journal of Computer Mathematics, 2014 - with Sigalit Hed**
- **Extension of functions - Advances in Quantum Chemistry, 2014**
- **Shape Deformation via Interior RBF - IEEE Transactions on Visualization and Computer Graphics, 2014 - with Zohar Levy**
- **Subdivision schemes and multi-resolution modelling for automated music synthesis and analysis - Journal of Mathematics and Music, 2012 - with Sigalit Hed**
- **Approximating piecewise-smooth function IMAJNA 2010 - with Yaron Lipman**
- **Derivation and Analysis of Green Coordinates - Computational Methods and Function Theory - 2010 - with Yaron Lipman**
- **Piecewise L-splines of order 4: Interpolation and L2 error bounds for splines in tension J. Approximation Theory - 2009 - with Ziv Ayalon and Nira Dyn**
- **Green Coordinates SIGGRAPH 2008 - with Yaron Lipman and Danny Cohen-Or**

Moving least-squares:

- **Data-Dependent MLS for Faitful Surface Approximation SGP 2007 - with Lipman and Cohen-Or (7 Mb)**
- **Parametrization-free Projection for Surface Reconstruction Siggraph 2007 - with Lipman, Cohen-Or and Tal-Ezer (7 Mb)**
- **Point-Set Surfaces Visualization 2001 - with M. Alexa, J. Behr, D. Cohen-Or, S. Fleishman and C.T. Silva**
- **The approximation power of moving least-squares Math. Comp. Vol 67, No. 224, 1998, 1517-1531. (125 kb)**
- **Stable integration rules with scattered integration points J. Comp. & Appl. Math., Vol. 112, 1999, 181-187. (237 kb)**
- **Mesh-independent surface interpolation . In "Geometric Modeling for Scientific Visualization" Edited by Brunnett, Hamann and Mueller, Springer-Verlag, 2003, 37-49. (89 kb)**

Oscillatory integrals, double-series, infinite products:

- **Analysis of a collocation method for integrating rapidly oscillatory functions J. Comp. & Appl. Math., Vol. 78, 1997, 131-138. (31 kb)**
- **The d2-transformation for infinite double series and the D2-transformation for infinite double integrals (with Chen Greif) Math. Comp., Vol. 67, No. 222, 1998, 695-714. (72 kb)**
- **Accelerating infinite products with Alan Cohen - in Numerical Algorithms 1999**

Subdivision:

- **Analysis of Univariate Nonstationary Subdivision Schemes with Application to Gaussian-based Interpolatory Schemes SIAM J. Math. Anal. 2007 with N. Dyn and J. Yoon**
- **C2 Subdivision over triangulations with one extraordinary point CAGD 2005 - with Adi Levin, Avi Zulti and Mine Teicher**
- **Subdivision Schemes as Attractors SGP 2005 - with S. Schaefer and R. Goldman**
- **Analysis of quasi-uniform Subdivision ACHA 2003 - with Adi Levin**
- **Using Laurent polynomial representation for the analysis of non-uniform binary subdivision schemes Advances in Comp. Math., Vol. 11, 1999, 41-54 (49 kb)**
- **Subdivision for C1 surface interpolation (with Nira Dyn and Sigalit Hed) (108 kb)**
- **Piecewise uniform subdivision schemes (with Nira Dyn and John Gregory) (43 kb)**
- **Analysis of Hermite-interpolatory subdivision schemes (with Nira Dyn) (37 kb)**
- **The subdivision experience (with Nira Dyn) (63 kb)**
- **Normals of the butterfly scheme surfaces and their applications, (N. Dyn, D. Levin and P. Shenkman), J. Comp. & Appl. Math., Vol. 102, 1999, 157-180.**
- **Convexity preservation of the four-point interpolatory subdivision scheme (N. Dyn, F. Kuijt, D. Levin and R. van Damme)(abstract)**

- **Interpolation by Dual Subdivision Schemes Proceedings of "Curves and Surfaces", St. Malo, 1999 (with Ilana Wartenberg)(343kb)**
- **Progressive compression of arbitrary triangular meshes VIS99 (with Daniel Cohen-Or and Ophir Remez)(1.8 Mb)**
- **Multidimensional reconstruction by set-valued approximation (oldies)**
- **Guided multi-dimensional reconstruction from cross-sections (with Daniel Cohen-Or) (42 kb)**

Morphing:

- **Green Coordinates Siggraph 2008 - with Lipman and Cohen-Or (7 Mb)**
- **Linear Rotation-Invariant Coordinates for Meshes Siggraph 2005 - with Lipman, Sorkine and Cohen-Or (7 Mb)**
- **Three dimensional distance field metamorphosis ACM Trans. on Computer Graphics Volume 17 (2), April 1998. (with Daniel Cohen-Or and Amira Solomovici) (1.8 Mb)**
- **As-rigid-as-possible shape interpolation Siggraph 2000 - with Marc Alexa and Daniel Cohen-Or**