

Curriculum Vitae

James G. Nagy

Professor and Chair

Department of Mathematics

Emory University

Atlanta, GA, USA

<http://www.mathcs.emory.edu/~nagy>

Research: Scientific computation, numerical linear algebra, inverse and ill-posed problems, algorithms and software for image processing.

Education:

- Ph.D., Applied Mathematics, North Carolina State University, December 1991.
- M.S., Mathematics, Northern Illinois University, August, 1988.
- B.S., Mathematics, Northern Illinois University, May, 1986.

Previous Positions:

- Emory College Professor for Distinguished Teaching, Emory University (2001–2005)
- Associate Professor, Emory University (1999–2006)
- Associate Professor, Southern Methodist University (1997–1999)
- Assistant Professor, Southern Methodist University (1992–1997)
- NSF MSPRF, University of Maryland, College Park (1994–1995)
- IMA Postdoctoral Research Fellowship, University of Minnesota (1991–1992)

Academic Awards, Honors and Recognitions:

- SIAM Fellows Selection Committee 2017–2019; Committee Chair 2018–2019.
- SIAM Fellow, selected in 2016.
- Co-Chair, University Research Committee, Emory University, 2016–present.
- Chair, SIAM Activity Group on Linear Algebra, January 1, 2016 – December 31, 2018.
- Vice Char, SIAM Activity Group on Linear Algebra, January 1, 2013 – December 31, 2015.
- Chair of Householder Committee, 2014–2017.
- Co-Chair, SIAM Conference on Applied Linear Algebra, October 26–30, 2015.
- Current editorial board appointments:
 - SIAM Journal on Matrix Analysis and Applications
 - SIAM Journal on Scientific Computing
 - Numerical Algorithms
 - Electronic Journal of Linear Algebra
- Invited talk at 2008 SIAM Annual meeting recorded and made available at:
<https://www.pathlms.com/siam/courses/5156>
- Talk at 2015 SIAM Applied Linear Algebra meeting recorded and made available at:
<https://www.pathlms.com/siam/courses/1697/sections/2330>
- Northern Illinois University, Golden Anniversary Alumni Award, September 25, 2009.
<http://www.niu.edu/clas/aboutus/awards/past-CLAS-award-honorees.pdf>

PI Grants (co-investigator and other collaborative funding not listed here):

- NSF, \$306,589, July 1, 2018–June 30, 2021.
- NSF, \$10,000, January 1, 2017–December 31, 2017.
- NSF, \$299,933, July 15, 2015–June 30, 2018.
- AFOSR, \$350,330, March 15, 2012–March 14, 2015.
- NSF, \$270,000, September 1, 2011–August 31, 2014.
- AFOSR, \$305,052, July 15, 2009–November 30, 2011.
- NSF, \$297,373, July 1, 2008–June 30, 2011.
- NSF, \$266,448, July 1, 2005–June 30, 2008.
- Emory URC, \$21,120, July 1, 2005–June 30, 2006.
- Emory ECOR Seed Funding, \$40,500, July 1, 2004–June 30, 2005.
- NSF, \$130,000, April 1, 2001–March 31, 2004.
- DOE, \$10,000, August 1, 1998–July 31, 1999.
- NSF, \$9,660, August 1, 1998–July 31, 1999.
- NSF, \$75,000, September 1, 1994–August 31, 1997.
- Oak Ridge Associated Universities, \$10,000, September 1993–August 31, 1994.

Scholarly Activity:

Books: **Image Deblurring**, *SIAM Press*, 2006.

co-authors: Per Christian Hansen and Dianne P. O’Leary

Introduction to Scientific Computing using Matlab, *Lulu*, 2011.

co-authors: Ian Gladwell and Warren E. Ferguson, Jr.

92 publications, which may be classified as follows:

Refereed Publications:	58	Conference Proceedings:	29
Educational Articles:	3	Submitted Manuscripts:	2

Google Scholar: <https://scholar.google.com/citations?user=fMdqZFsAAAAJ&hl=en>

Selected publications (* indicates student at time paper was written):

- S. Gazzola, P. C. Hansen, and J. G. Nagy. *IR Tools: A MATLAB Package of Iterative Regularization Methods and Large-Scale Test Problems*, Numerical Algorithms (2018), doi: 10.1007/s11075-018-0570-7.
- J. Zhang, Y. Hu* and J. Nagy. *A scaled gradient method for digital tomographic image reconstruction*. Inverse Problems and Imaging, (2018), to appear.
- M. Kubínová* and J. Nagy. *Robust regression for mixed Poisson-Gaussian model*, Numerical Algorithms (2018), doi-org.proxy.library.emory.edu/10.1007/s11075-017-0463-1.
- J. Zhang and J. Nagy. *An alternating direction method of multipliers for the solution of matrix equations arising in inverse problems*. Numerical Linear Algebra and Applications (2017), <https://doi.org/10.1002/nla.2123>.
- E. Loli-Piccolomini, G. Landi and J. Nagy. *A Limited Memory BFGS method for a nonlinear inverse problem in digital breast tomosynthesis*, Inverse Problems 33 (2017), doi.org/10.1088/1361-6420/aa7a20.

- D. Hope, S. Jefferies, M. Hart and J. Nagy. *High-Resolution Speckle Imaging Through Strong Atmospheric Turbulence*. Optics Express, 24 (2016), pp. 12116–12129.
- S. Berisha*, J. Nagy and R. J. Plemmons. *Deblurring and Sparse Unmixing of Hyperspectral Images using Multiple Point Spread Functions*. SIAM J. Sci. Comput., 37 (2015), pp. S389–S406
- S. Berisha*, J. Nagy and R. J. Plemmons. *Estimation of Atmospheric PSF Parameters for Hyperspectral Imaging*. Numer. Lin. Alg. Appl., May 2015 (DOI: 10.1002/nla.1986).
- P. C. Hansen, K. Kigkos and J. Nagy. *Rotational Image Deblurring with Sparse Matrices*, BIT Numerical Mathematics, 54 (2014), pp. 649–671.
- S. Gazzola* and J. Nagy. *Generalized Arnoldi-Tikhonov Method for Sparse Reconstruction*, SIAM J. Sci. Comp., 36 (2014), pp. B225–B247.
- V. Mejia-Bustamante*, J. Nagy and I. Sechopoulos. *Iterative Breast Tomosynthesis Image Reconstruction*, SIAM J. Sci. Comp., 35 (2013), pp. S192–S208.
- Q. Chu*, S. Jefferies and J. Nagy. *Iterative Wavefront Reconstruction for Astronomical Imaging*, SIAM J. Sci. Comp., 35 (2013), pp. S84–S103.
- J. Bardsley, M. Howard* and J. Nagy. *Image Deblurring, Gaussian Random Fields, and Neumann Boundary Conditions*, ETNA, 40 (2013), pp. 476–488.
- S. Berisha* and J. Nagy. *Iterative Methods for Image Restoration*, book chapter to appear in e-Reference on Signal Processing, Elsevier, editor H. J. Trussell, 2013.
- Y.-W. Fan* and J. Nagy. *An Efficient Computational Approach for Multiframe Blind Deconvolution*, J. Comput. Appl. Math., 236 (2012), pp. 2112–2125.
- J. Chung, S. Knepper* and J. Nagy. *Large-Scale Inverse Problems in Imaging*, Chapter 2 in Handbook of Mathematical Methods in Imaging, Otmar Scherzer, ed., Springer (2011), pp. 43–86.
- P. Wendykier* and J. Nagy. *Parallel Colt: A High Performance Java Library for Scientific Computing and Image Processing*, ACM Transactions on Mathematical Software, 37 (2010), pp. 31:1–31:22.
- J. Chung* and J. Nagy. *An Efficient Iterative Approach for Large-Scale Separable Nonlinear Inverse Problems*, SIAM J. Sci. Comput., 31 (2010), pp. 4654–4674.
- F. Di Benedetto, C. Estatico, M. Pastorino and J. Nagy. *Numerical Linear Algebra for Nonlinear Microwave Imaging*, Elect. Trans Numer. Anal., 33 (2009), pp. 105–125.
- J. Chung*, J. Nagy and D. O’Leary. *A Weighted GCV Method for Lanczos Hybrid Regularization*, Elect. Trans. Numer. Anal., 28 (2008), pp. 149–167.
- M. Kilmer and J. Nagy. *Kronecker Product Approximations for Dense Block Toeplitz-plus-Hankel Matrices*, Num. Lin. Alg. Applic., 14 (2007), pp. 581–602.

Conference and Lecturing Activities:

Conferences Organized:	3	Invited Plenary Presentations:	33
Minisymposia Organized:	12	Invited Minisymposia Presentations:	50
Short Courses Organized:	4	Contributed Presentations/Posters:	7
External Invited Seminar and Colloquium Presentations:		36	

Selected conference, seminar and colloquium activities include:

- Chair of Householder Committee, *Householder Symposium XX*, Blacksburg, VA, June 18–23, 2017.

- Chair, *Georgia Scientific Computing Symposium*, Atlanta, GA, February, 2016.
- Member of Program Committee, *Copper Mountain Conference on Iterative Methods*, Copper Mountain, CO, March 21–25, 2016.
- Co-Chair, *SIAM Conference on Applied Linear Algebra*, Atlanta, GA, October 26–30, 2015.
- Member of Householder Committee, *Householder Symposium XIX*, Spa, Belgium, June 8–13, 2014.
- Member of Organizing Committee, *SIAM Conference on Applied Linear Algebra*, 2006 and 2009.
- Plenary Talk, *SIAM-SEAS Conference*, University of Alabama at Birmingham, March 20–22, 2015.
- Plenary Talks, *4th Workshop on Mathematical Analysis on Inverse Problems and Imaging*, National Astronomical Observatory of Japan, Tokyo, Japan. January 7–8, 2014.
- Plenary Talk, *International Workshop on Numerical Linear Algebra with Applications*, Hong Kong, China. November 17–18, 2013.
- Plenary Talk, *Optimization Techniques for Inverse Problems*, Modena, Italy, September 20–21, 2012.
- Plenary Talk, *SAMSI Opening Workshop, Massive Datasets Program*, Raleigh, NC, September 9–11, 2012.
- Plenary Talk, *24th Biennial Conference on Numerical Analysis*, University of Strathclyde, Glasgow, Scotland, June 28 - July 1, 2011
- Plenary Talk, *Advanced Maui Optical and Space Surveillance Technologies Conference*, Maui, HI, September 24, 2009.
- Invited Topical Talk, *SIAM Annual Meeting*, San Diego, CA, July 7–11, 2008.
- Plenary Talk, *International Linear Algebra Society (ILAS) Conference*, Cancun, Mexico, June 15–21, 2008.
- Plenary Talk, *Householder Symposium*, Zeuthen, Germany, May 31 - June 7, 2008.
- Plenary Talk, *Advanced Maui Optical and Space Surveillance Technologies Conference*, Maui, HI, September 24, 2007.
- Plenary Talk, *Householder Symposium*, Champion, PA, May 23–27, 2005.
- Plenary Talk, *SIAM-SEAS Conference*, Charleston, SC, March 25–26, 2005.
- Plenary Talk, *SIAM Conference on Applied Linear Algebra*, Williamsburg, VA, July 15–18, 2003.
- Plenary Talk, *Householder Symposium*, Whistler, B.C., Canada, June 13–18, 1999.
- Plenary Talk, *SIAM Conference on Sparse Matrices*, Coeur d’Alene, Idaho, October 9–11, 1996.

Refereeing:

- Average approximately 10 journal papers per year.
- Proposals from AFOSR, NSF (including several Panels), DOD, NIH, NSERC (Canada).

Student Supervision:

- Currently supervising 3 Ph.D. students and 3 undergraduate honors students.
- Former Ph.D. students (* indicates jointly advised with Lars Ruthotto):
 - Clarissa Garvey, 2018. Current position: Software Engineer, Google.
 - James Herring*, 2018. Current Position: Posdoc, U. Houston.
 - Sebastian Berisha, 2014. Current position: Postdoc, U. of Pennsylvania.
 - Qing Chu, 2013. Current position: Highmark Health.
 - Veronica Mejia-Bustamante, 2013. Current position: Financial Analytics, JP Morgan Chase.
 - Sarah Knepper, 2011. Current position: Staff Scientist for MKL Group, Intel.
 - Ying-Wai (Daniel) Fan, 2010. Current position: Software Engineer, Google.
 - Piotr Wendykier, 2009. Current position: Software Engineer, Wolfram Research.
 - Julianne Chung, 2009. Current position: Assistant Prof., VA Tech.
 - Lisa Perrone, 2004. Current position: DDS, Honolulu, HI.
 - Katrina Palmer, 2004. Current position: Full Prof., Appalachian State University.
 - Julie Kamm, 1998. Current position: Software Engineer, Raytheon Systems.
- Former M.S. students: K. Johnson, 2005; Z. Xie, 2007; N. Adams, 2013.
- Former B.S./M.S. Honors students: S. Sulaiman, 2001; R. Wright, 2002.
- Former B.A./B.S. Honors students: J. Chung, 2004; J. Herring, 2010; J. Nance, 2011;
 - C. Cheng, 2013; H. Xia, 2015;
 - L. Lin, 2016; C. Meng, 2016; S. Raju, 2016;
 - R. Platero, 2017; H. Wu, 2017.

Teaching Awards:

- Emory Williams Distinguished Teaching Award
Emory University, 2010.
- Crystal Apple Award for Excellence in Graduate Teaching
Emory University, 2007.
- Emory College Professor for Distinguished Teaching
August 2001–July 2005.
- Golden Mustang Award for Excellence in Teaching and Scholarship
Southern Methodist University, 1996.

Teaching Activities:

- Workshop for *Sonia Kovalevsky High School Math Day*, Emory University, May 8, 2008.
- Organized MATLAB Training Sessions for Emory faculty, postdocs and graduate students, August 2003, August 2004, October 2004.
- National Public Radio Interview, *Emory Scientists Seek Perfect Pictures*, October 28, 2003.
- Teaching Problem-Solving Skills Presentation, *Teaching Assistant Seminar*, August 20, 1998.
- Faculty Mentor, *Fifth Annual Teaching Effectiveness Symposium*, Southern Methodist University, August 18, 1998.
- Invited Faculty Panel Participant, *Reflections of Teaching Award Winners*, for the *Fifth Annual Teaching Effectiveness Symposium*, Southern Methodist University, August 19, 1997.
- Selected Member of *Project Kaleidoscope Faculty for the 21st Century*, an alliance of individuals, institutions, and organizations dedicated to strengthening the nation's undergraduate and mathematics community. (Supported by the Exxon Foundation and the NSF.) 1996–1999.

- Group Leader, break-out session on Teaching Mathematics and Quantitative Analysis, *Third Annual Teaching Effectiveness Symposium*, Southern Methodist University, August 25, 1995.

University Service Activities (Emory):

- Co-Chair, University Research Committee (URC), 2016–present.
- Member, Program for Enhancement of Research and Scholarship (PERS) Committee, 2015–present.
- Member, College Senate Working Group on Evaluation of Teaching Excellence, Spring, 2017.
- Member of Recruitment Advisory Committee for Senior Associate Dean of Research, 2014–2015.
- Laney Graduate School Appointments Committee, 2014–2016.
- Chair, Emory College Tenure and Promotion Committee, 2012–2013.
- Emory College Tenure and Promotion Committee, 2010–2013.
- Graduate Studies Committee, Math. and Comp. Sci., Emory University, 2010–present.
- Director of Graduate Studies, Math. and Comp. Sci., Emory University, 2003–2009.
- University Research Committee (URC), 2006–2009.
- Emerson Lecture Committee, 2006–2009.
- Computational and Life Sciences Advisory Committee, 2006–present.
- Graduate School of Arts and Sciences Executive Council, Emory University, 2006–2007.
- Center for Teaching and Curriculum Advisory Committee, Emory University, 2002–2005.
- Athletic Council (including Executive, Academic, Budget and Equity subcommittees), Southern Methodist University, 1997–1999.
- CTC Teaching Initiatives Committee, fall, 2002 – spring, 2003.
- Integrated Natural, Physical and Computational Sciences (INPACS) degree planning committee member, spring 2001 – 2003.

University Service Activities (SMU):

- Director of Graduate Studies, Mathematics, Southern Methodist University, 1997–1999.
- Athletic Council Member (Executive, Academic, Budget, and Equity Subcommittees)
- Chair, Athletic Council Budget Subcommittee, spring, 1999.
- Athletics Policies Committee for SACS Accreditation, 1998–1999.

Additional Awards and Honors

- Northern Illinois University, Golden Anniversary Alumni Award, September 25, 2009.
<http://www.niu.edu/clas/aboutus/awards/past-CLAS-award-honorees.pdf>
- Invited talk at 2008 SIAM Annual meeting recorded and made available at:
<https://www.pathlms.com/siam/courses/5156>
- NCAA All American, Gymnastics. (3rd place on Still Rings at the 1986 NCAA National Championships, University of Nebraska).
http://www.mathcs.emory.edu/~nagy/Nagy_gymnastics_1986a.jpg
http://www.mathcs.emory.edu/~nagy/Nagy_gymnastics_1986b.jpg