

Curriculum Vitae

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John “Ernie” Esser

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EDUCATION

UCLA, Los Angeles, California

- Ph.D. Mathematics, 2010
- M.A. Mathematics, 2004

University of Washington, Seattle, Washington

- B.S. Mathematics with College Honors, 2003
- B.S. Applied and Computational Mathematical Sciences (ACMS), 2003
- B.A. Italian, 2003
- Minor: Physics, 2003

RESEARCH INTERESTS

Convex Optimization, Inverse Problems, Image Processing

PAPERS

- Ernie Esser, Michael Möller, Stanley Osher, Guillermo Sapiro and Jack Xin, *A convex model for non-negative matrix factorization and dimensionality reduction on physical space*, 2011 (submitted to IEEE Transactions on Image Processing)
- Ernie Esser, *A Convex Model for Image Registration*, January 2010
- Ernie Esser, Xiaoqun Zhang and Tony F. Chan, *A General Framework for a Class of First Order Primal-Dual Algorithms for Convex Optimization in Imaging Science*, SIIMS Vol. 3, No. 4, 2010.
- Ernie Esser, *Applications of Lagrangian-Based Alternating Direction Methods and Connections to Split Bregman*, April 2009

CONFERENCES

- Park City Mathematics Institute, Summer 2010
- DTRA/NSF Algorithm Workshop, Chapel Hill, June 2010
- SIAM Conference on Imaging Science, Chicago, April 2010
- SIAM Annual Meeting, San Diego, July 2008
- Stanford 50, March 2007
- SIAM 50th Anniversary and Annual Meeting, Philadelphia, July 2002

PRESENTATIONS

- *A General Framework for a Class of First Order Primal Dual Algorithms for Convex Optimization in Imaging Science*, Georgia Tech Applied and Computational Mathematics Seminar, November 2010.
- *A Convex Model for Image Registration*, PCMI, Summer 2010.
- *A General Framework for a Class of First Order Primal-Dual Algorithms for TV Minimization*, SIAM Conference on Imaging Science, Chicago, April 2010
- *An Explicit Primal-Dual Algorithm for Large Non-Differentiable Convex Problems*, SIAM Conference on Imaging Science, SIAM Conference on Imaging Science, Chicago, April 2010
- *Primal Dual Algorithms for Convex Models and Applications to Image Restoration, Registration and Nonlocal Inpainting*, UCLA, Math 290J Seminar: Mathematical models for image processing and medical imaging, February 2010
- *A General Framework for a Class of Primal-Dual Algorithms for TV Minimization*, UCI, CAM Seminar, September 2009
- *What Makes Boomerangs Come Back?*, Summer Institute for Mathematics at the University of Washington, Summer 2007, 2008
- *What Makes Boomerangs Come Back?*, University of Washington, Mathday, 2003-2011

TEACHING
EXPERIENCE

UCI

- Numerical differential equations lab, Spring 2011
- iCAMP teaching
 - Signal Processing, Fall 2010, Winter 2011
 - Image Processing, Winter 2011

UCLA

- Instructor for introductory linear algebra class, Spring 2008
- Taught math subject GRE prep course, Summer 2007
- Teaching assistant, Fall 2004 - Winter 2009
 - Integration and Infinite Series
 - Mathematical Modeling
 - Applied Numerical Methods
 - Mathematical Imaging
 - Introduction to Programming (C++)
 - Introduction to Programming for Internet

University of Washington

- Teaching assistant for Research Experience for Undergraduates (REU) program on discrete inverse problems, Summer 2002, 2003, 2005, 2006, 2008
- Teaching assistant for advanced calculus course, 2001-2003

SCHOLARSHIPS AND
AWARDS

- Graduate Research Mentorship, UCLA 2006-2007
- NSF VIGRE Fellowship 2003-2004
- Outstanding ACMS Graduate, University of Washington 2003
- Graduated Magna Cum Laude with GPA of 3.88 over 289 credits
- MAA award for outstanding paper in COMAP's Mathematical Contest in Modelling (MCM), joint with Jeff Giansiracusa and Simon Pai, 2003
- SIAM award for outstanding paper in MCM, joint with Jeff Giansiracusa and Ryan Card, 2002

PERSONAL
INFORMATION

- Born May 19, 1980, in Seattle, Washington
- Hobbies include soccer, badminton, tennis, trebuchets and boomerangs